OVER 275 PRODUCT REVIEWS!

$3.95 October 1987
$4.95 Canada and Foreign

MacUser

02579

THE MACINTOSH™ RESOURCE

Laser Wars!

PostScript Printer Free-for-all

PAGEMAKER 2.0 TURNS A NEW LEAF

Is It Still the Standard?

YOUR OWN EDUCATIONAL PROGRAMS

Course Builder Gets High Marks

EXCEL'S FULL MACRO POWER

Getting It and Using It

0 71486 02579 10

HIGH-POWERED FEATURES THAT MAKE REFLEX PLUS EASY TO USE

- ☑ Any number of entry forms for the same database
- ☑ Entry for more than one database in a single entry form
- ☑ Your entry form can display one record at a time, or all records at once in a table-style view
- ☑ Calculated fields in entry forms
- ☑ An entirely new manual
- ☑ Display-only fields
- ☑ Default fields that are editable
- ☑ New functions like GROUPBY, which lets you easily show records grouped by values in common
- ☑ Unlimited font selection
- ☑ A selection of useful templates, including one to generate mailing labels on your ImageWriter™ or LaserWriter™
- ☑ Choice of record sizes—1000, 2000 or 4000 characters
- ☑ Many Command-key shortcuts
- ☑ "What you see is what you get" design for entry forms and reports
- ☑ Text, floating-point, number, integer, sequence number, date, time and logical data types
- ☑ Display formatting that includes dollar, scientific and percent for numbers
- ☑ Text that can be fixed or variable in height
- ☑ Automatic sorting by key fields
- ☑ Sorting on as many fields as you want, in any way you want
- ☑ Paste Choices, which allows you to create formulas with links, or paste files easily
- ☑ Disk-based, so the limit to your database size is your disk
- ☑ Compatible with all Macintosh computers with at least 512K of RAM

Turning disorganized data into

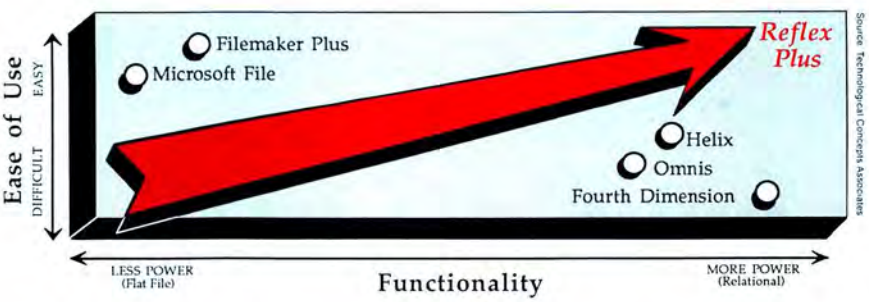
DATABASE SPECIFICATIONS

- ☑ Maximum single field length: 4072 bytes
- ☑ Maximum fields per record: 254
- ☑ Maximum record length: 4080 bytes
- ☑ Maximum records per file: limited only by disk capacity
- ☑ Maximum number of linked database files: 200
- ☑ Maximum number of open windows: 15
- ☑ Maximum number of files that can be used by a report: no limit

THE INFORMATION TREADMILL

Dealing with data is an inescapable reality of modern living—at home and on the job. Especially on the job. Most of it is pertinent. Much of it is valuable. And almost all of it would make our lives more productive—if we could just figure out how to make it work for us without a staff of experts inputting, outputting and making all the right connections.

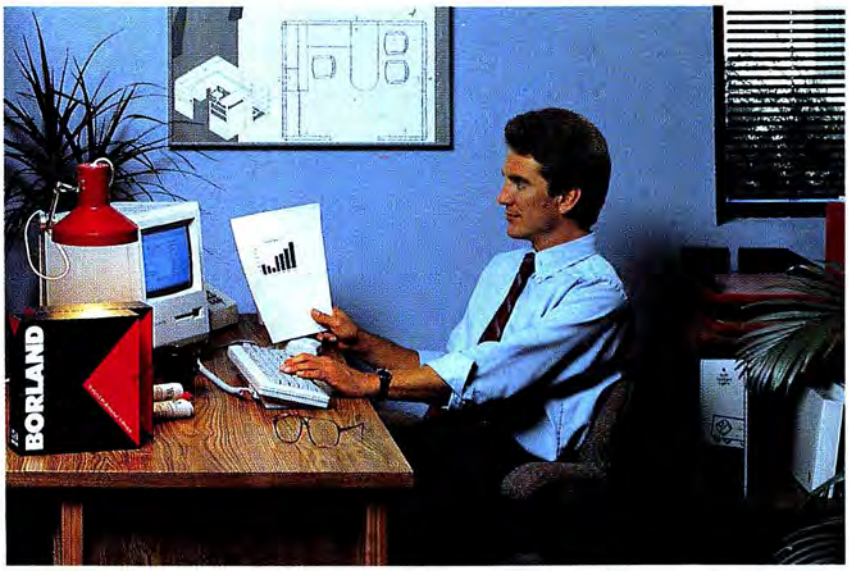
DATABASE MANAGERS



Prior to Reflex Plus, there were flat-file database managers which were easy to use but limited in power. There were relational programs which were powerful, but difficult to learn and use. Now there is Reflex Plus. It spans all areas of functionality. It can be employed by a single user. It's easy to learn and simple to use.

For Power, Speed, Ease of Use

If this product does not perform in accordance with our claims, please call our customer service department and we will arrange a full refund.



useful information: Reflex Plus

Dā-ta-bāse:
"a collection of data organized especially for rapid search and retrieval."

Some people are intimidated by the mere mention of the word "database." Don't fall into the trap. In today's business world, power is measured by the ability to retrieve, manipulate and evaluate information. A database manager gives you that power.

THE FLAT FILE MODEL

The most elementary form of database manager is the flat file database manager. It allows you to manage lists—like inventories, basic mailing lists, payment records, prospect lists and so on, but its power is limited.

THE RELATIONAL MODEL

A relational database manager such as *Reflex Plus* can manage flat file databases. But its real power comes from the "relational" aspect. It allows you to create multiple flat files, then link and cross-reference records within these files. Oftentimes, the "relationship" established through linking is more important to a user than the original files. Up to now, the most popular relational databases have proven to be cumbersome, hard to learn and difficult to use.

HAVE IT YOUR WAY

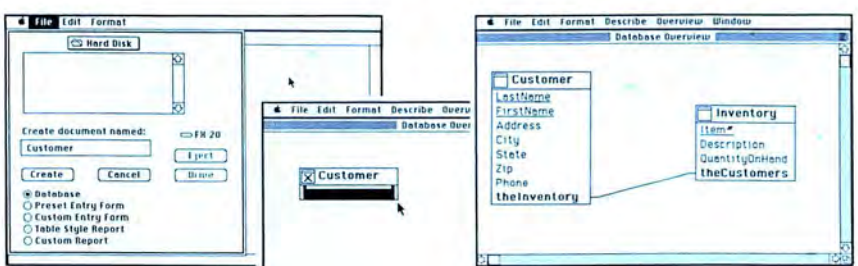
Reflex Plus gives you amazing flexibility in creating databases, accessing data and producing reports. You can organize and sort your data any way you want—on as many fields as you want. You can display it any way you want. You can add graphics, change fonts, add calculated fields—all according to your own design.

It crunches numbers like a spreadsheet—with 49 arithmetic, text and statistical functions built in. Which means that it's an especially effective productivity tool on your Macintosh.

Reflex Plus gives you the opportunity to make sense out of all that data. *Reflex Plus* turns disorganized data into useful information, resulting in perceptive decisions.

Best of all, *Reflex Plus* is only $279.00 and it comes from Borland.

HERE'S HOW IT WORKS (It's as simple as drawing a box.)



(1) Pull down the File menu and select "New Database File . . ." Enter the name you have chosen. Click on "create."

(2) Voila! Your database is on the screen and waiting for you to enter fields.

(3) Draw lines between the databases to establish the proper relationship between them. And that's it! You're now ready to enter your data.

and Technical Superiority . . .

Reflex Plus is a trademark of Borland/Analytica, Inc. Other brand and product names are trademarks or registered trademarks of their respective holders. Copyright 1987 Borland International BI-1128

Please circle 128 on reader service card.

Announcing Reflex Plus

Manage Your Data.

All of It.

Any Way You Want It.

BORLAND

The raw power of a relational database manager. The operational simplicity of a flat-file database manager. And the calculating ability of a spreadsheet. Merged into an amazing new issue of Borland's classic information management tool.

Reflex Plus has arrived . . .

BORLAND
INTERNATIONAL

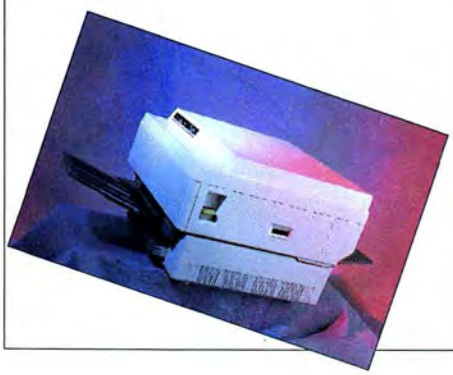
For the dealer nearest you or to order by phone:

Call (800) 255-8008*

*California: (800) 742-1133. Canada: (800) 237-1136.

MacUser

THE MACINTOSH RESOURCE



WORD PROCESSING

Turning Over a New Leaf

by Ezra Shapiro

PageMaker 2.0 makes desktop publishing even easier. **70**

PRODUCT SURVEY

Laser Wars

by Henry Bortman

A comparative look at four laser printers—including Apple's best. **84**

GRAPHICS

The Electronic Signature

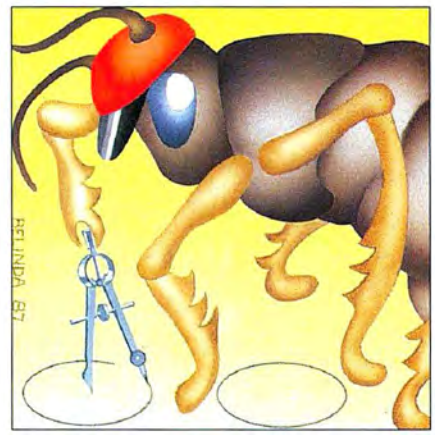
by Fred Terry

Add your signature to your font menu with *Fontographer*. **114**

A Second Coat of Paint

by Phil Inge Chang

GraphicWorks 1.1: much more than *ComicWorks* in a new package. **126**



EDUCATION

An Educational Cookbook

by Sharon Zardetto Aker

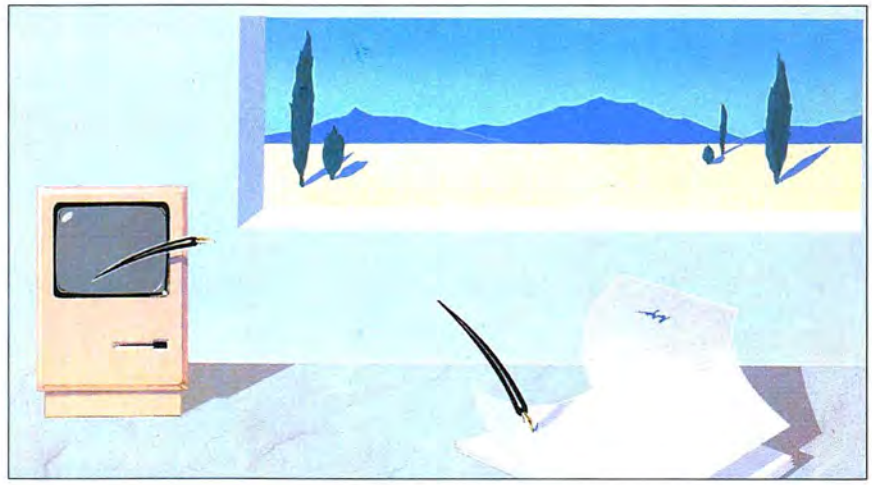
Course Builder turns your Macintosh into an animated textbook. **136**

MUSIC

Music Between the Keys

by Paul Lehrman

M and *Jam Factory* bring music to perfect pitch. **146**



VOL. 3, NO. 10 OCTOBER 1987

Cover photo by Jook Leung

RESOURCES

Coming of Age
by Gregory Wasson
JustText is just the ticket for desktop publishers who want to take advantage of PostScript. **156**

COLUMNS

The Editor's Desktop
by Neil L. Shapiro
Foreign and Familiar Concepts. **15**

Pinstripe Mac
by Robert R. Wiggins
Overpower Your Mac. **37**

The Macintosh Boundary
by Doug Clapp
Programming Days (and Nights). **47**

The Help Folder
by Dan Cochran
Answers From the Mac Team. **171**

The Devil's Advocate
by John C. Dvorak
Tuning Into the Future. **228**

MiniFinders
Hundreds of capsule reviews to help you pick and choose. **186**

DEPARTMENTS

Letters
from the Mac community
Readers have their say. **21**

New On the Menu
edited by Louise Kohl
Latest updates, Rumor Manager and more. **30**

Quick Clicks
Eight picks and pans from our stable of reviewers. **48**

Tip Sheet
compiled by David Schargel
Mac hints, tips and shortcuts. **179**

Coming Soon. 10
Advertisers Index. 230
MacUser Marketplace. 220
MacUser Back Issues. 44

ANTHROCART.™

Mobile . . . a key reason why people like the AnthroCart. Share your hardware. Move it around. Take it room to room or floor to floor.

AnthroCart. High-tech furniture for high-tech equipment. Space saver. Compact. Rugged.

The AnthroCart is designed to move. Designed so your workspace is as slick as your hardware.

Call us: 800-325-3841

IBD

5 YEAR WARRANTY

Supports up to 150 lbs.
All steel frame construction
5½ square foot footprint

Anthro Corporation
Technology Furniture
3221 N.W. Yeon St.
Portland, OR 97210
503-241-7114

ANTHRO

Anthro Corporation is a wholly owned subsidiary of Tektronix, Inc. Anthro is a registered trademark of Anthro Corporation.

MacUser

THE MACINTOSH RESOURCE

EDITORIAL
Editor in Chief Steven Bobker
Executive Editor Louise Kohl
Managing Editor Daisy Genovese
Technical Director Chip Carman
Associate Editor Ben Templin
Assistant Editor Jeri Harrison
Editorial Assistant Laura Johnson
Contributing Editors Sharon Zardetto Aker, Doug Clapp, Dan Cochran, Tracie Forman Hines, Ian McKinnell, Ezra Shapiro, Michael D. Wesley
Contributing Business Editor Robert R. Wiggins
Contributing Anti-Editor John C. Dvorak

Editor at Large Neil L. Shapiro

DESIGN & PRODUCTION
Art Director Lisa Orsini
Associate Art Director Marybeth Cunniff
Assistant Art Director Diane Dempsey
Assistant Production Director Carlos Lugo
Production Manager Randi B. Kantor

CIRCULATION SERVICES
Circulation Managers
Charles Mast, Melinda Kendall
Customer Service Kimberly Armstrong

Publisher
Martin Mazner
Marketing Services Manager
Keith Newman
Assistant to Marketing Services Manager
Alane Bowling

MacUser (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Co., a division of Ziff Communications Co., One Park Ave., New York, NY 10016. Editorial Offices: 110 Marsh Drive, Foster City, CA 94404. Telephone: (415) 598-2380. Midwest Offices: 1150 Wilmette Avenue, Wilmette, IL 60091. Telephone: (312) 251-2541. U.S. subscription rates are $27 for 12 issues, $45 for 24 issues and $62 for 36 issues. For Canada and Mexico, subscription rates in U.S. funds are $29 for 12 issues, $49 for 24 issues and $68 for 36 issues. For other countries add $50 per year to the U.S. rates for airmail. Add $12 per year to the U.S. rates for surface mail. Single copy price is $3.95 (Canada $4.95). POSTMASTER: Send address changes to MacUser, P.O. Box 56986, Boulder, CO 80321-6986.

Entire contents Copyright© 1987 Ziff Communications Company. All rights reserved; reproduction in whole or in part without permission is prohibited. PERMISSIONS: Material in this publication may not be reproduced in any form without permission. Requests for permission should be directed to the Licensing Manager, Jean Lamensdorf, Ziff-Davis Publishing Company, One Park Ave., New York, NY 10016. For back issues (subject to availability), send $6 per issue, Canada foreign $7 per issue to: Ziff-Davis, One Park Avenue, 4th floor, New York, New York 10016, Attn: K. Armstrong.

Second class postage paid at New York, NY 10016 and at additional mailing offices.

BPA **MacUser is an independent journal, not affiliated in any way with Apple Computer, Inc. Printed in the USA.**

A disk each month

PACKED with PROGRAMS

Over 500,000 sold to homes, schools and offices.

DISCOVER UPTIME. Build an exciting library of programs for less than one dollar each. You deserve value. At UPTIME value is yours. Each month over 30,000 people just like you enjoy UPTIME. Your disk arrives with eight programs and more every month...

Enjoy eight programs including two new desk accessories on each monthly disk. Make your life easier. Get more from your Macintosh. Organize and be more productive with **home** and **business management** programs. Learn with **educational** programs. Enjoy all the **games** and **adventures.** Using your Macintosh is now a snap with **tutorials** and **desk accessories.**

It's easy, inexpensive and fun. It's UPTIME! Too good to be true? There's even more! Each monthly disk has reviews of the latest software, hardware and peripherals. Save time and money. Learn the strengths and weaknesses of each item we evaluate. Shop "on the disk" in our Micro Discount Mall.

Subscribe now and save. You won't believe the low price! Satisfaction is guaranteed — or your money back. You'll be amazed at just how much comes on every UPTIME disk. Make the very next one yours. Fill out the coupon. For immediate service call toll-free:

1-800-437-0033

anytime, day or night.

Please circle 153 on reader service card.

QUALITY PROGRAMS LESS THAN $1 EACH

NEW FOR ALL MACINTOSH COMPUTERS

FROM **Volume 1, No. 8**

Small View ■ Alphabet Talker ■ Saviour DA ■ Armonk Font ■ File Function Key ■ Kaleido ■ Panic! ■ Stuntcopter

I'm a Macintosh enthusiast who wants more. Please start my subscription to **UPTIME** immediately.

I'LL BYTE!!! SAVE $89.90 → **12** Disk Issues $89 ☐ | **6** Disk Issues $59 ☐ | **3** Disk Issues $36 ☐ | **1** Disk Issue $14.95 ☐

(Add $2 per issue in foreign countries, except Canada and APO)

Name_____

Address_____

City_____ State_____ Zip_____

Type of Computer_____

☐ Payment enclosed. (Please make checks payable to UPTIME.)

Bill my: ☐ Visa ☐ MC Exp. Date_____

Signature_____

Account No._____

Send to:
UPTIME · PO Box 299
Newport, RI 02840
(401) 849-4925

MU10

HP 3000 USERS:

MAKE YOUR MACINTOSH A SUPER-TERMINAL!

With Mac2624, you can connect your Mac to an HP 3000, 9000, or 1000, emulating all functions of a block mode CRT. Includes printing, logging, and Clipboard support; on-screen buttons for function keys, editing and cursor keys; high-speed file transfer with intelligent text and graphics conversion options.

Tymlabs

Tymlabs Corporation / 211 East 7th Street / Austin, Texas 78701, U.S.A. / (512) 478-0611 / Telex 755820
Wick Hill Associates Ltd. / 42A-44 High Street / Egham, Surrey, U.K. TW20 9DP / 0784-38441 / Telex 268764
Tymlabs-APPIC / 59, Rue du Faubourg Poissoniere / 75009 Paris, France / (1) 48-24-10-45 / Telex 643013F
Megatec Pty., Ltd. / 2 Brunswick Road / Mitcham 3132, Australia / (03) 874-3633 / Telex 152692

Please circle 52 on reader service card.

UNIVERSAL MAC PARALLEL INTERFACE

Laser Printers! Dot Matrix!

The new Grappler® C/MAC/GS will connect your Mac Plus, SE, or II to virtually all parallel printers such as Epson, Okidata, Star and Panasonic. Even economical Laser printers like the Okidata LASERLINE 6 (only $1,600). The Grappler looks just like a printer cable, but housed in one end is the hardware/firmware to emulate the ImageWriter II. Because the Grappler is software transparent, there are no clumsy drivers to install, or menus to change. The Grappler Universal Printer Interface (List $99) will save you hundreds, maybe thousands of dollars over other Mac printer solutions; especially if you already have a parallel matrix or laser printer.

Grappler® C/Mac/GS
Universal Parallel Interface

© Orange Micro, Inc., 1987

ORDER NOW!

800-223-8029

In CA 714-779-2772
Or see your local Apple dealer

Orange Micro® Inc.

1400 N. Lakeview Ave., Anaheim, CA 92807

"Quality Apple® products since 1980"

Please circle 16 on reader service card.

MacUser
THE MACINTOSH RESOURCE

Founding Publisher Felix Dennis

ADVERTISING
National Advertising Director
Hjordis Fammestad
11 Davis Drive
Belmont, CA 94002
415-598-2325
Western Advertising Director
Noreen St. Pierre
415-598-2300
415-499-0505
Northwest Advertising Managers
Gary Carter
415-598-2326
Leslie Hutchison
415-598-2370
Southwest Advertising Manager
Roy J. Kops
415-598-2335
Eastern Advertising Director
Suzanne Zellner
One Park Avenue
New York, NY 10016
212-503-5210
Mid-Atlantic/Southeast Advertising Manager
Russell Brody
212-503-5416
Midwest Advertising Manager
Kevin Sullivan
1150 Wilmette Avenue
Wilmette, IL 60091
312-251-2541
Senior Advertising Service Coordinator
Kari Miller
National Sales Coordinator
Joyce Schroeder
Classified Advertising Director
Kathryn Cumberlander

ZIFF DAVIS PUBLISHING COMPANY
President Kenneth H. Koppel
Senior Vice President, Marketing Paul H. Chook
Vice President, Operations Baird Davis
Vice President, Controller John Vlachos
Vice President, Creative Services Herbert Stern
Vice President, Research Marian O. White
Vice President, Circulation Alicia Marie Ivans
Vice President, Circulation Services James Ramaley
Vice President, Marketing Services Ann Pollak Adelman
Vice President, Development Seth R. Alpert
Vice President Hugh Tietjen
Business Manager Gary A. Gustafson
Production Director Walter J. Terlecki

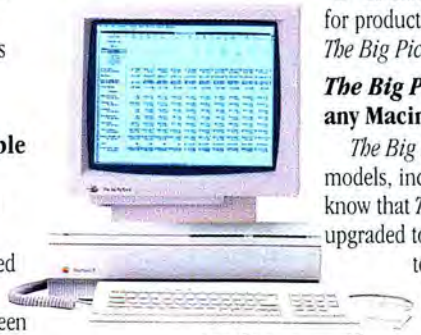
ZIFF COMMUNICATIONS COMPANY
Chairman Philip B. Korsant
President Kenneth H. Koppel
Senior Vice President Philip Sine
Vice Presidents Laurence Usdin, William Phillips, J. Malcolm Morris, Steven C. Feinman
Treasurer Selwyn I. Taubman
Secretary Bertram A. Abrams

Power to see your best.

The 827,392 pixel window of opportunity

If you are a designer, engineer or a professional in business, marketing or sales you have probably discovered you can work faster and communicate better with a Macintosh.™

Add *The Big Picture*® from E-Machines and you open new vistas of power. Here is the opportunity to see your best work unfold. *The Big Picture* displays a 1024 by 808 pixel desktop that shows you over four and a half times more information than the standard Macintosh screen, or almost three times as much as either of the optional screens for the new Macintosh II.



Engineered to be the most Macintosh compatible

The Big Picture is the ideal large screen for your Macintosh. We have carefully designed and engineered all the major systems from the ground up. The hardware, the software, the ergonomics. Because we designed it right, from the start, following all the Macintosh rules, you get the most Macintosh compatible large screen monitor on the market.

The Big Picture supports all standard Macintosh software. Plus, it's compatible with the leading high-performance add-ons. Like Hypercharger-020™ from General Computer and TurboMax™ from MacMemory; products from Levco, Dove, and more.

In fact, one of the most tangible statements about E-Machines' commitment to engineering quality can't be seen on the screen at all. You have to look behind *The Big Picture* to see the FCC "B" certification stamped right on the back.

That's the highest rating attainable. Rather than settle for the easier to get Class "A" certification, we pushed ourselves for excellence. Class "B" demands rigorous engineering and is reserved only for products that exceed tough standards. Products like *The Big Picture* and the Macintosh.

***The Big Picture* is upgradable to work with any Macintosh**

The Big Picture is available now for all Macintosh models, including the new -SE and -II. And it's good to know that *The Big Picture* you buy today can be upgraded to work with the Macintosh you may buy tomorrow. Even if you have your sights set on one of Apple's new "Open Macs" or portables from Dynamac™ and Colby.™

See for yourself

Ask your Apple® dealer for *The Big Picture.* Dealer installation is quick and easy. There's no drilling or soldering which keeps your Macintosh neat, clean and portable as ever. *The Big Picture* and Macintosh. The power to *see* your best.

THE BIG PICTURE®

E-Machines Inc. 7945 S.W. Mohawk Street Tualatin, Oregon 97062 (503) 692-6656

© 1987 E-Machines, Inc. Apple, Macintosh SE, and Macintosh II are trademarks of Apple Computer, Inc. Hypercharger-020™ is a trademark of General Computer and TurboMax™ is a trademark of MacMemory.

Please circle 18 on reader service card.

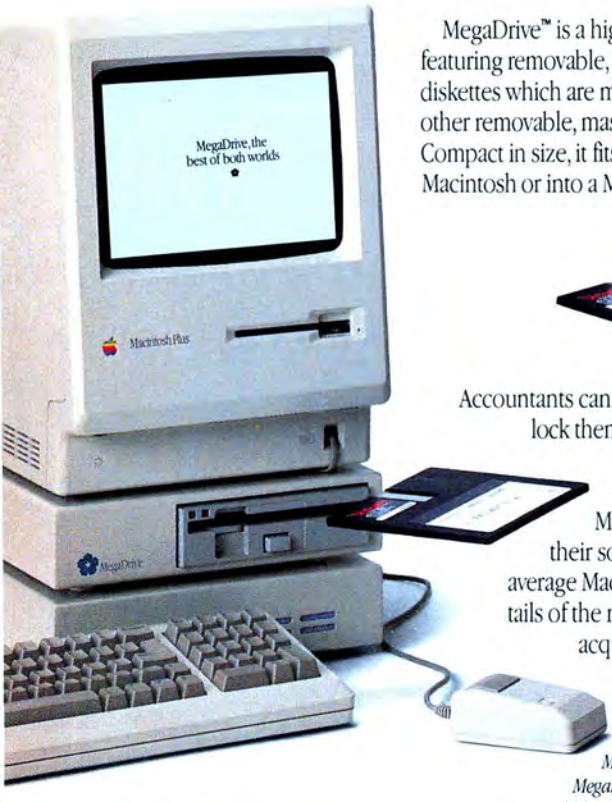
Decisions, D

Visit us at MACWORLD Expo/Boston

Choose with confidence from Jasmine's wide range of quality, innovative products at affordable prices. From the pacesetting Direct Drive series, to the unique BackPac 40, you never compromise quality for price when you purchase a Jasmine product. Discover why MacWorld (July 1987) said "It's easy to fall in love with the quiet Jasmine drive."

MegaDrive™

Hard drive power with the freedom of a floppy.



MegaDrive™ is a high speed, SCSI storage device featuring removable, 10 megabyte, MegaFloppy™ diskettes which are much more reliable than other removable, mass storage products. Compact in size, it fits under your Macintosh or into a Macintosh carrying case.

In a word, MegaDrive™ is flexible. It has something for every Macintosh user. Accountants can put each account on its own disk and lock them away for safe keeping. Desktop publishers can put fonts, clip art, layouts and different clients on separate MegaFloppy disks. Musicians can organize their sound libraries and samplings and the average Macintosh user can finally make heads or tails of the mountains of floppy disks they've acquired over the years!

MegaDrive **$999**
($1029 Visa/MasterCard)

MegaFloppy Disks: ***$39.95*** *each (**$41.15** Visa or M/C)*
MegaFloppy Three-Pack:* ***$109.95*** *(**$113.25** Visa or M/C)*
**Three packs include handy Storage Case*

To Order Call (415) 621-4339

Remember that Jasmine saves you 40% or more.

Our prices include 30 Day Trial/Money Back Guarantee, and Full One Year Warranty.

Every drive is shipped with a technical hotline number to answer any questions. MegaDrive, Direct Drive 20, 40, 50, 80, 160, BackPac 40, Jasmine, are trademarks of Jasmine Technologies, Inc. Product specifications and prices are subject to change. Prices include 2' cable and PD software. Prices do not include shipping, CA sales tax (6.5%) or special rush handling. Apple is a registered trademark of, and Macintosh is a trademark licensed to Apple Computer, Inc.

Call for dealer and developer pricing.

s, Decisions.

Direct Drive™ Series

Hard drives that re-defined value and quality.

From the Direct Drive 20, to the revolutionary Direct Drive 80, Jasmine now offers a full spectrum of drives to meet every user's needs. Our newest addition, the Direct Drive 160, offers an incredible combination of power and speed for just $2899! The Direct Drive series is synonymous with excellent construction, no cost "extras" and high reliability.

20MB $649
($669.00 Visa/MasterCard)

40MB $999
($1029.00 Visa/MasterCard)

50MB $1159
($1193.00 Visa/MasterCard)

80MB $1399
($1441.00 Visa/MasterCard)

160MB $2899
($2986.00 Visa/MasterCard)

"The Jasmine Direct Drive 80 is an excellent value, offering not only outstanding price and performance, but an excellent price against the small disk market as well.* InfoWorld *highly recommends looking at this drive for your Macintosh."

– InfoWorld
June 29, 1987

"The Drive ran flawlessly during the review period, with very good performance and no compatibility problems of any kind."

– MacWorld
July 1987

BackPac 40™

Portability and Power for the Macintosh Plus

The introduction of the incredible BackPac 40™ has established Jasmine as the leader in innovation as well as value. Weighing less than 3 pounds, BackPac 40. silently integrates 40 megabytes of power into the "upgrade path" Macintosh Plus™ owners so desperately need. The convenience and portability of an internal hard disk with the reliability and ease of installation of an external SCSI hard disk. BackPac 40.

BackPac 40 ***$1299***
($1339 Visa/MasterCard)

"backup software included."

JasPort

SCSI Power for the Macintosh 512.

JasPort, a Macintosh Plus compatible SCSI port for the Macintosh 512 Enhanced or 512K with ROM upgrade, permits Macintosh users to utilize Jasmine's Direct Drive, MegaDrive and other SCSI devices. User installable.

JasPort ***$129***

Jasmine Technologies, Inc.
555 De Haro Street, San Francisco, CA 94107

Please circle 58 on reader service card.

Trade up to Word, and we'll give you $75 for MacWrite.

You can't go MacWrong.

Microsoft® Word Version 3 is the most powerful word processor available for any PC. Yet moving up to it from MacWrite™ couldn't be easier.

Word reads MacWrite files, so you'll still be able to read and write to your old documents.

Word's "short menus" are almost identical to MacWrite's, so you'll hardly notice the changeover.

And anyway, we're offering you a bribe.

Here's the deal:

You get Word. Then you send us your original MacWrite disk, Word registration card and proof of purchase.*

And we send you $75.

Call us crazy, if you like. But call the number below, or see your local Microsoft dealer.

Before we come to our senses.

1-800-323-3577

Microsoft®

*Minimum purchase price, $200.

This offer is not good in conjunction with any other promotion or upgrade offer and is good in the U.S. only. Offer now extended through October 31, 1987. In Alaska call (206) 882-8088.

Microsoft and the Microsoft logo are registered trademarks of Microsoft Corporation. MacWrite is a trademark of Apple Computer, Inc.

COMING SOON

Is page layout and graphics your field? Try COMIC BOOK FACTORY to bring out your best.

Full review of Levco's PRODIGY for the SE—complete with benchmarks

---

C.A.T. (Contacts/Activities/Time), an organizational powerhouse

---

ACCOUNTING revisited—a look at some of the new and best programs

---

MGMS STATIONS—CAD/CAM at its best?

Use all the fonts and DAs you want thanks to SUITCASE

PLUS

The Macintosh Boundary from **Doug Clapp. John Dvorak** on the state of the Mac. **Robert Wiggins'** Pinstripe Mac. **Dan Cochran** with Answers from the Mac Team. Three pages of **hints and tips.** Over 250 **MiniFinders.** An expanded **Quick Click** section, now including hardware. More **Cauzin Softstrips.**

MacUser
THE MACINTOSH RESOURCE

FINE PRINT WEASEL

Editors absolutely reserve the right to publish none, some, all, or just the parts we managed to complete of the above, do to the inherent problems that occur when reviewing software, hardware and the ever elusive vaporware.

Denmark rethinks the computer table...

The original MacTable was the perfect place for a Macintosh. Then the Macintosh changed shape. So we thought about it again and built a new one.

Introducing the all-new MacTable. Perfect form and function for the entire Macintosh family.

Cabinet becomes platform for LaserWriter. Holds disks, manuals, and a full carton of paper.

One table fits all

The new MacTable fits every Mac made, be it 128, 512, Plus, SE, or the Macintosh II.

It has a place for everything. Hard disk, second drive, modem, keyboard, mouse, ImageWriter, and LaserWriter. Plus a carton of paper. Yet even with a full complement of gear, there's room to spread out for serious work.

Every surface interchangeable

Each of MacTable's four surfaces can be independently tilted — and interchanged! You can even make it right or left handed. So it accommodates any peripheral you'll ever have at comfortable working and viewing angles.

Stands the test of time

MacTable is meticulously built in Denmark, by craftsmen using pure beechwood and durable laminates. Its new, sturdy design and quality materials support even the heaviest equipment. And MacTable is now a new color: Platinum Gray, same as the new Macintosh line.

...again.

Interchangeable surfaces offer configurations for every size Mac.

Matching roll-away cabinet

The new free-standing cabinet (optional) is big enough to use as a stand for your LaserWriter or CPU. It features easy-glide casters, space for full-size binders, and a special place in the locking drawer that holds over 100 disks upright and secure.

New lower price

The new MacTable also has a new price. Just $269. Add the sturdy, matching cabinet for $129 more (all prices plus shipping and handling). And if you're not satisfied with MacTable for any reason, return it for a prompt refund (less shipping).

Before you buy an ordinary table for your Macintosh, think again. Then choose the Danish solution. The new MacTable.

Please circle 67 on reader service card.

The New MacTable®

- *New MacTable handles the entire family of Macs, including the new Macintosh II.*
- *Surfaces tilt independently for ergonomic comfort.*
- *Strong base and durable materials support heavy equipment.*
- *Dimensions: 60"W x 30"D*

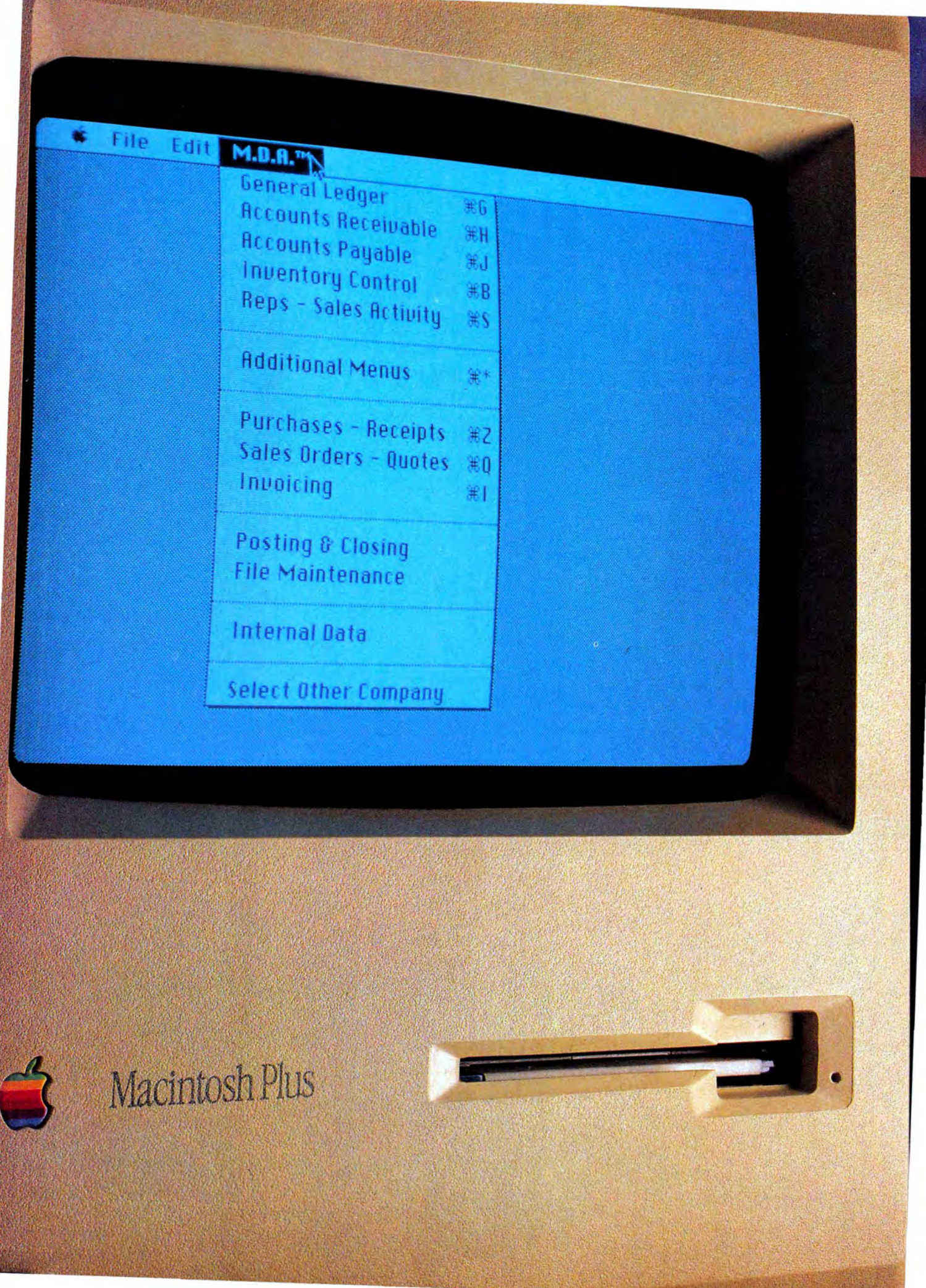
VISA
MasterCard

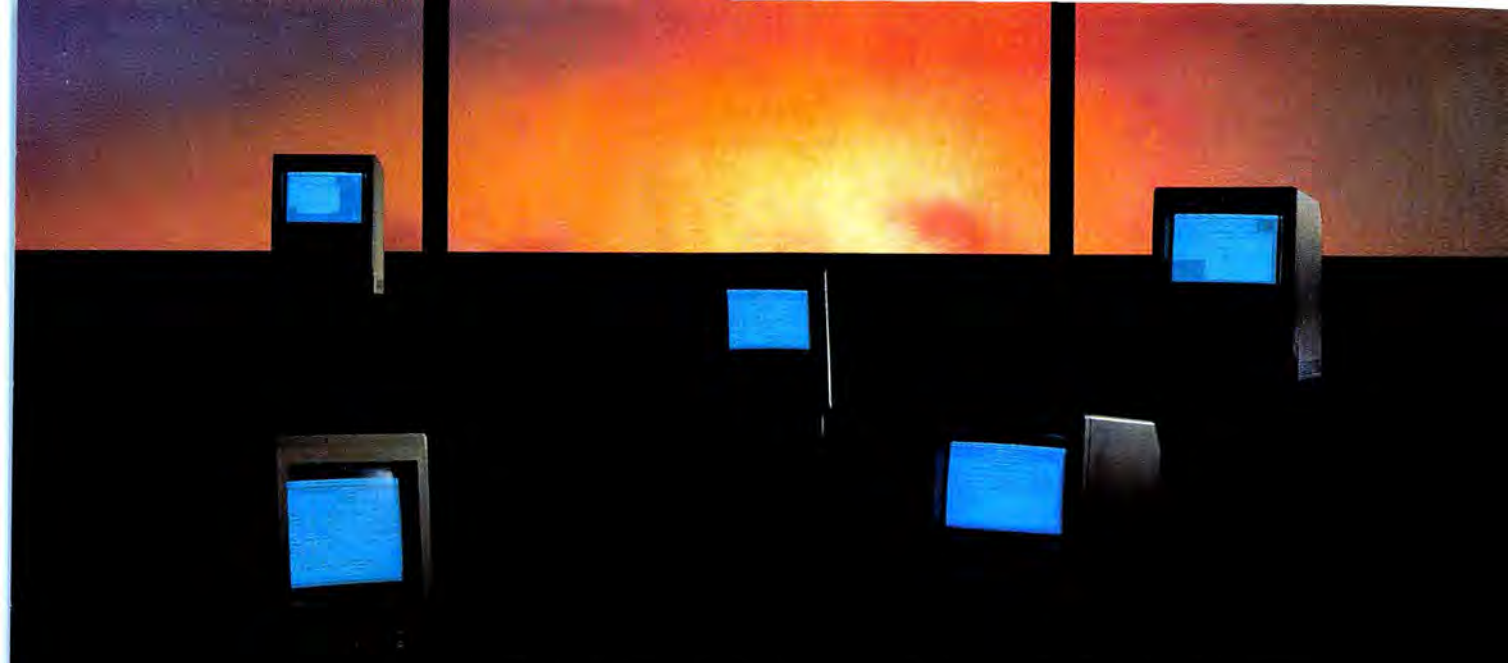
To order your MacTable or for more information call:
TOLL FREE 1-800-722-6263
in WA state (206) 881-5751

ScanCoFurn P.O. Box 3217, Redmond, WA 98073-3217

Please circle 67 on reader service card.

MacTable design patent pending. MacTable is a registered trademark of Scandinavian Computer Furniture, Inc.
Apple is a trademark of, and Macintosh is a trademark licensed to, Apple Computer, Inc. Price and design subject to change without notice.


File Edit M.D.A.™
General Ledger ⌘G
Accounts Receivable ⌘H
Accounts Payable ⌘J
Inventory Control ⌘B
Reps - Sales Activity ⌘S
Additional Menus ⌘*
Purchases - Receipts ⌘Z
Sales Orders - Quotes ⌘Q
Invoicing ⌘I
Posting & Closing
File Maintenance
Internal Data
Select Other Company
Macintosh Plus



Your entire accounting staff can order from this menu.

Feast your eyes on the one menu that lets your entire accounting department share access to the most powerful, most complete multiuser accounting system ever developed for Macintosh.™

This is Multiuser Desktop Accounting™ (MDA™).

Using MDA, your staff can keep your company in order. Tracking projects and controlling every aspect of your company's financial operation. And they can do so for multiple companies.

Service for one or a party of 32.

Whether your accounting department is a single desk, or several offices, MDA will fit your needs. With plenty of room for growth.

The single-user version is upgradable to multiuser. And with the multiuser version, you can expand to up to 32 workstations.*

What's more, your entire staff can work at the same time. Even on the same datafile. While one person is recording accounts payable, another can update inventory, and someone else can process sales orders. The system uses record locking to safeguard against two people editing the same record. And to limit user access where necessary, MDA gives you eight user security password levels, plus a master user level.

An expandable selection of capabilities, courtesy of OMNIS 3 Plus™

MDA is a highly sophisticated accounting system. Written by accountants. For accountants. And best of all, it's written on the OMNIS 3 Plus database.

In *MACWORLD*, OMNIS 3 Plus has been described as "...Powerful, Ultra Fast, Dependable, Flexible, and probably the most supported relational database management program there is for the Apple Macintosh computer!"

That means an accounting system with plenty of power and very few limitations. For example, MDA handles numbers up to $9,999,999,999.99—per account. And the number of accounts is limited only by disk capacity.

All of MDA's accounting functions are fully integrated, so it's truly a single-entry system. And those functions include virtually every accounting procedure you could ask for. (Just look at the menu.)

If you don't see something you need, don't worry. With the purchase of our Coding Option—and the help of an OMNIS 3 developer—you can create your own formats and reports, then integrate them into the system.

In addition, a growing number of optional modules—including a complete payroll system—are available to meet specialized accounting requirements.

A single menu means singular ease of use.

With MDA, accountants can put the full power of computers to work, without having to learn complex commands and operating procedures.

You initiate every accounting and reporting operation from the MDA menu. There are no separate modules to load.

The entire system is menu-driven. So you can proceed from one operation to another with speed and confidence. Even switch from one company to another simply by selecting a command.

Full service, and expert technical support.

Should you have a question or a new requirement, you can rest assured you'll get the support you need.

MDA is supported by the nationwide network of OMNIS Support and Development Centers. In addition, training is available for you and your staff at any MDA Certified Training Center.

Now that we've whet your appetite with the multiuser capabilities of MDA, call 1-800-458-7466. And put the power of Multiuser Desktop Accounting to work in your office.

MDA Multiuser Desktop Accounting from

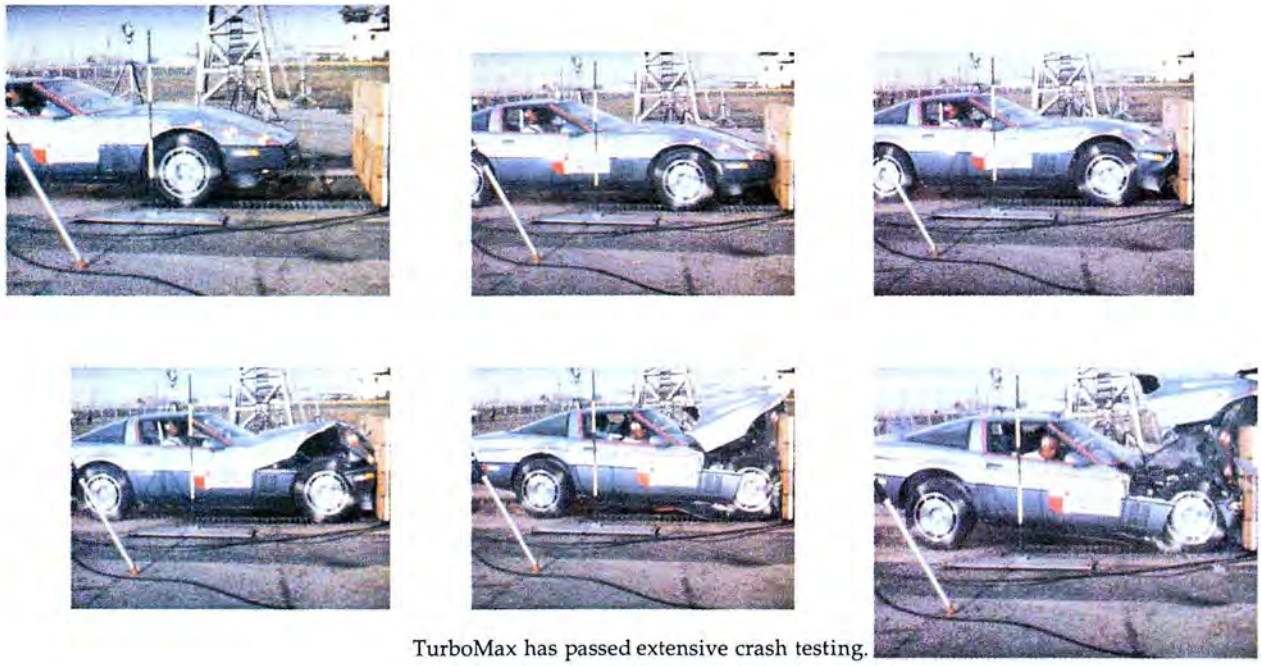
CIRCO BUSINESS SOLUTIONS

1729-A Little Orchard Street, San Jose, CA 95125 (800) 458-7466 (408) 998-1132

Please circle 30 on reader service card.

Macintosh is a trademark licensed to Apple Computer, Inc.
OMNIS 3 Plus is a trademark of Blyth Software, Ltd.
*In its multiuser version MDA supports an accounting staff working in the same or various areas simultaneously, limited only by the database-hardware networking capabilities. © 1987 Circo Business Solutions.

A Crash Course in Accelerator Boards.



TurboMax has passed extensive crash testing.

Listen carefully to the hype surrounding 68020 performance options available for Macintosh computers today.

Faster this.

Quicker that.

Nice, simple, glittering generalities about how fast they run. Now, take a look at the fine print. "*May not run properly with some programs*" or "*certain programs may have to be revised to function correctly*."

In other words, many of the programs you work with everyday simply won't work with 68020 add-ons.

They crash.

There is, however, an alternative. One that's 100% compatible with virtually every Macintosh program. **TurboMax**, a "clip-on" accelerator board for your Macintosh Plus or 512Ke.

TurboMax is more than your typical accelerator board. It's a multi-function hardware and software system designed to make you more productive—so you can finish your work sooner.

It consists of a 16MHz 68000 CPU (same as the one in the Macintosh Plus—but three times as fast), RAM expansion to 2Mbyte, a "super-speed" SCSI port, a "beefed-up" power supply and an "ultra-cool" fan.

You can also add a 68881 coprocessor (to speed up arithmetic computations—like spreadsheets—up to 60 times faster) and an internal 40Mbyte SCSI hard disk for fast, high-volume storage.

With TurboMax, you get pure speed—without sacrificing compatibility. Which means you can work faster—instead of worrying about whether or not your programs will work.

We've also included a couple of MacMemory standards with TurboMax. Like MaxSave, a recoverable RAM disk that prevents you from losing valuable data in the event of a system error. Plus our unsurpassed one-year warranty.

So if you'd like to get more performance out of your Macintosh Plus or 512Ke, call us today at (800) 862-2636 (in California, call (408) 922-0140) for the authorized dealer nearest you.

TurboMax from MacMemory. Where high performance and compatibility are simply a matter of course.

FULLY APPROVED COMPATIBLE

MacMemory Inc.

2480 North First Street, San Jose, CA 95131
MacMemory is an authorized Apple Developer

TurboMax is a trademark of MacMemory, Inc. Apple and Macintosh are trademarks of Apple Computer, Inc.

Please circle 115 on reader service card.

by Neil L. Shapiro

Foreign and Familiar Concepts

It's been an exciting few weeks for me, as my Mac II finally arrived and I have been familiarizing myself with it. I'm sure by now you've all read various reviews of this new machine, probably have even had some hands-on experiences of your own. But I'd like to offer some of my own experiences in an informal way, just one user to another.

WHOOSH!

First and foremost—it's a fast machine. This is the Ferrari of personal computing, the Lamborghini of the mousepad set. I thought my Mac Plus with SCSI drive was no slouch but I was really surprised by just how fast the Mac II with the built-in SCSI drive (40 meg, in my case) can go about its business, and your business, everybody's business.

Yes, for business, this has got to be the world's most exciting productivity tool. I loaded in some *Excel* templates that I use to run my own business and was simply delighted at how fast they recalculated, how quickly the disk access process itself was speeded up. I think that benchmarks are very useful. And there's no doubt that this speed is exactly what many benchmarks led me to expect.

But a benchmark can be a foreign concept that can be difficult to relate to everyday use. When you see that, arithmetically, a few seconds have been shaved off here and there, the tendency is to nod and think, "That does sound nice, but I'm happy with the speed I now have."

Well, no, you're *not* happy with the speed you now have. Trust me. No matter how happy you are with the performance of your present Mac Plus or even Mac SE, the Mac II is just going to blow you away. Seconds count, and count and count and count!

KEYS TO MY HEART

Then there's the extended keyboard. At first, I'll admit that I did not like the keyboard very much. The keys are big, even mammoth in size. The first day I was typing I felt sometimes as if I was playing a piano and other times as if I was 8 years old and using my Daddy's computer. But that only lasted for about two days.

Now I find that Apple did an absolutely wonderful job in the ergonomic design of this keyboard. I find the tactile feedback, key placements and overall feel of the extended keyboard to be well worth a short period of acclimitization.

Of course, there was one thing I did feel badly about. There were a lot of keys that just did not do anything. All of the top row of function keys; the keys with such interesting monickers emblazoned upon them as "page up," and "page down," all of these were just dead wood—or at least numb plastic.

Then Don Brown of CE Software came to my rescue with a chance to help him beta-test a new program that woke up all of those keys. The program will run on any Mac and allows keys to be redefined in all sorts of interesting ways from straight macro keys to much more. The name of the program was not decided by press time. But we will definitely have a review of it in a subsequent issue as it develops. Likely, by the time you read this, the program will be completely available. If you have any Mac, and particularly a Mac II with an extended keyboard, give CE Software a call at (515) 224-1995 and ask them for information on the "mysterious program that Neil Shapiro spilled the beans on."

And, of course, when such things as MS-DOS cards become available many of the keys will wake up to be used to emulate IBM PC keys. And speaking about cards....

SLOTS OF PROMISE

Talk about *deja vu*. When I popped the hood for the first time on the Mac II I was instantly transported back in years to the first time that I looked into my first Apple II and saw its slots. Back then, I was quite new to computing and had absolutely no idea what such things as slots might someday be used for. I recall wondering if they might not always remain empty.

Well, we can certainly say that the slots in the Apple II did not lie fallow for long. Hundreds and hundreds of plug-in circuit boards made the Apple II into what is still the world's most customizable computer.

Now comes NuBus and the Mac II.

If ever it could be said that a computer carried within itself the seeds of greatness, there are these seeds in the Mac II—and they're called slots.

I'll admit that they look much more foreboding than the slots in the Apple II. In fact, when I installed the video card, I was a little shaky over how easy (or not) that might prove to be. For one thing the Mac II slots are more complicated in appearance than those in the Apple II. The slots have such things as lining-up guides on the back of the case.

But I need not have worried. The video card just naturally seated itself right in the machine in one easy motion. If anything, the slots on the Mac II are easier to install cards in than on the Apple II.

And, once installed, forget it—there's no contest. The Mac II's NuBus cuts out almost all worries as to configuring cards; trying to figure out which cards will work with other cards, and how to stop some cards from interfering with others. All of the card headaches that Apple II owners occasionally have and that plague IBM PC owners should just about disappear with the Mac II. The NuBus just automatically takes care of such worries.

Believe me, it was a pleasure to plug in a circuit card and then just simply turn on the computer. No little switches to set, no potentiometers to turn, no groans of anguish amidst rising coils of black smoke.

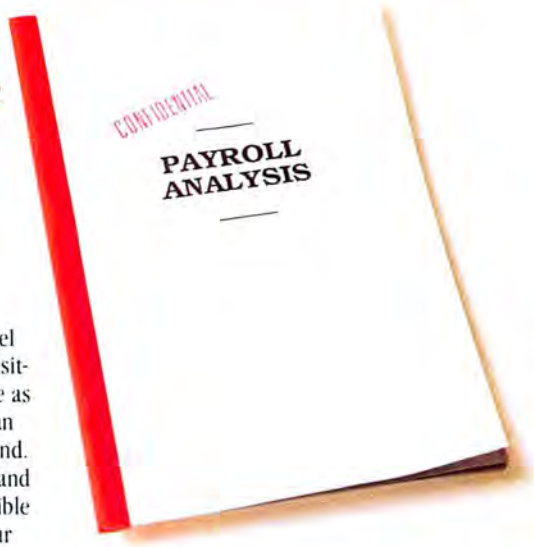
COLOR ME (STILL) BLUE

Well, I wish I could end this with a brief note as to how I am enjoying the Mac II's wondrous palette of colors. Unfortunately, the color monitors were not yet released as I am writing this so I

KAREN STOLPER

Would you leave this document out on your desk?

Then why leave it unprotected on your disk?

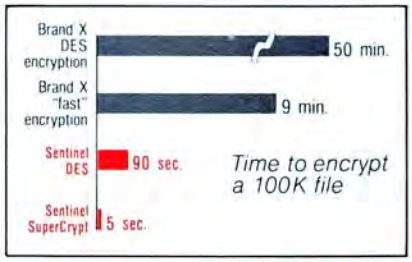


Everyone creates confidential documents — payroll analyses, bids, personnel records, to name a few. But documents sitting on the Mac desktop are as vulnerable as papers left out on your desk. Anyone can access your files when you are not around. And with the increased use of hard disks and networks, your data is now more accessible than ever. You need a way to guard your private documents from prying eyes.

SENTINEL: Password Protection and Encryption.

SENTINEL is a data encryption utility that lets you lock your documents right on your desktop. Since password protection is easily circumvented by the determined intruder, Sentinel uses password *and* encryption strategies to protect your documents.

For encryption (which actually scrambles the data on your disk), Sentinel presents a choice of two methods: *DES* or *SuperCrypt*™. Both offer speed as well as security. Our DES encrypts a 100K file in less than 90 seconds, SuperCrypt in just under 5.



Sentinel's two encryption methods, DES and SuperCrypt, are so fast, they leave the competition in the dust.

Standard Macintosh Format.

Documents encrypted by Sentinel remain in standard Macintosh file format. They can be backed up, copied, transmitted over networks, or sent to remote sites by modem. But unlike all of the other files on your desk top, they can be unlocked and read only by someone possessing the correct password.

Easy and Natural to Use.

Sentinel also makes working with your secured files more convenient. Creating *Sets* of files allows you to protect multiple documents efficiently. You can add or delete documents to a Set, and Sentinel will lock or unlock them all with one password.

The *WorkSet* feature remembers which files have been opened at any time during a work session, and gives you a quick lock-down capability. Sentinel was designed to be unobtrusive and easy to use, making file security a natural work practice.

Price: $149.95.

Minimum system requirements: Macintosh 512e

SENTINEL. Because it's not a personal computer anymore.

SUPERMAC SOFTWARE

295 N. Bernardo, Mountain View, CA 94043
(415) 964-9694

©1987 SuperMac Software.

have only the hi-res, monochrome monitor to report on.

But it's a spiffy monitor even if it is "only" black-and-white. The resolution is about the same as on the Mac Plus with a slightly lower contrast. The difference in contrast is, of course, because this monitor must be able to also display shades of gray when color software is run.

The production-run monitor I bought does not show any of the screen problems that have been bothering some Mac SE buyers. The amount of screen "bowing" and "pincushioning" is just about

For business, the Mac II has got to be the world's most exciting productivity tool.

negligible. The picture area is straight and centered on the CRT face. The only problem I can detect is that sometimes large white areas tend to "ghost" a little onto the grey desktop. But that's being hypercritical.

If you have heard any rumors that the Mac II's black and white screen will prove hard to read because Apple sacrificed legibility for color—don't even bother repeating them. I work at my Mac II from 6 to 15 hours a day and my eyes are perfectly happy with the view.

I did get a glimpse of color on a friend's Mac hooked up to a Sony monitor. Awesome. And, from what I have heard, the Apple color monitor will be even better. Obviously, we'll be reporting on color software as it becomes available. Meanwhile, suffice it to say that the Mac II's color promise is also a reality.

I know that many people at Apple Computer worked yeoman hours to get the Mac II out on time. I have even heard that many employees voluntarily gave up all of their last Christmas holiday just to ensure that the new baby would fulfill all the promises. Well, they've succeeded in that—and more.

To the Mac II Team: Thanks, people, for the vision and for the dedication that made that vision today's Mac II!

ONLINE COOPERATION

Thousands of Macintosh owners know how useful a modem can be for such things as calling electronic bulletin-

Build color into your graphics with an HP plotter.

Whether you're building sales revenues or designing new kitchens, Hewlett-Packard's family of color plotters will make your overheads and CAD drawings more effective. How? With the powerful advantage of high-impact color. An HP graphics plotter will turn your Macintosh into a color graphics powerhouse.

Build enthusiasm at your next presentation with vivid, high-quality overhead transparencies. And highlight important management reports with crisp, professional-looking charts and graphs. All easily prepared by any of HP's business graphics color plotters.

If you're designing parts or building up the skyline, color-coded drawings in sizes A through E will make your designs easier to understand and execute. An HP DraftPro or DraftMaster plotter will quickly produce sharp, precise drawings on paper, vellum, or polyester film.

And all HP plotters integrate easily with your Macintosh and popular graphics software such as Microsoft Excel, Cricketgraph and MacDraft.

For a sample plot, a brochure and name of your nearest HP dealer, call 1-800-367-4772, extension 688A.

Microsoft Excel is a registered trademark of Microsoft Corporation. Floorplan provided by Gruyé Associates, Palo Alto, California.
©1987 Hewlett-Packard Co.

HEWLETT PACKARD

Please circle 22 on reader service card.

The Picture

Graphics. That's what you bought the Macintosh for. And that's why there's PictureBase—the graphics "database" for desktop publishers.

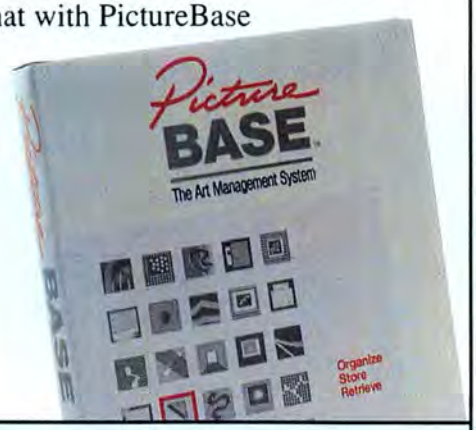
With its advanced retrieval system, PictureBase puts graphics at your fingertips anytime, even within other applications. Used with PageMaker® 2.0 or XPress®, you can even place a graphic from PictureBase into a document without copy and paste.

And through the purchase of a low cost multi–use license, users can share graphics through AppleShare™, MacServe™ or other AppleTalk™ file servers.

All of which simply means, that with PictureBase you can be more productive.

For more information or the dealer nearest you call Symmetry toll free.

National 1-800-624-2485.
In AZ., (602) 844-2199.



Symmetry
CORPORATION

761 EAST UNIVERSITY DR., MESA, AZ 85203

The Thousand Words

You do more than just put words on paper—you put your thoughts.

That's what Acta was designed for. To help you go from a thought or spark of an idea, to the printed word. And because it's a desk accessory, it does it anytime, in any application.

Acta works like you do—in stages with topics and subtopics. Just double–click to hide or reveal each level or organize by dragging. You can even search and sort.

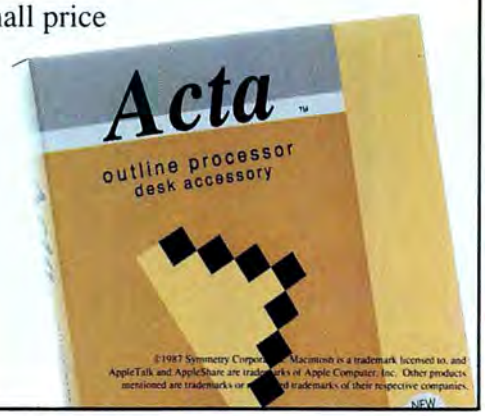
Go ahead. Use Acta to create a report, a presentation or even a to–do list. Because Acta is more than just an outliner, it's a tool to manage information.

And for only $59.95*, it a small price to pay for such a large increase in productivity.

For more information or the dealer nearest you call Symmetry toll free.

National 1-800-624-2485.
In AZ., (602) 844-2199.

*suggested retail



Symmetry
CORPORATION

761 EAST UNIVERSITY DR., MESA, AZ 85203

Please circle 3 on reader service card.

boards and large networks and keeping offices in touch. One of the things that makes modeming so much fun, and so useful, is the ability to transfer Macintosh software between machines. In this way non-commercial software, shareware, electronic magazines, formatted reports and much more can get right to the people that will use them just as fast as a telephone connection can be established.

One of the basic techniques behind this ability is something called the "MacBinary Standard." Files that are stored online in MacBinary format are the easiest and most accurate to download.

The new *System* (4.1) and *Finder* (5.5) have meant that the MacBinary standard was in need of updating. The new standard has just been published following a series of online conferences that beautifully demonstrated a feeling of community among all Mac telecommunicators.

To the Mac II Team: Thanks for the vision and for the dedication that made that vision today's Mac II!

People from otherwise competing networks such as CompuServe, Delphi and BIX all got together with representatives from such companies as Apple and Hayes, Freesoft and many, many others to come up with an expanded standard all could live with. I'm pleased to report that not only does the expanded standard completely fix all of the problem areas, it does *not* obsolete existing terminal programs.

If you are programming a terminal program, or if you're just curious, you'll want to check out the new standard as soon as possible. You'll find it published (along with complete transcripts of the various conferences that led up to it) on all the major networks (MAUG on CompuServe, ICONtact on Delphi, the Mac Roundtable on BIX, Usenet and probably others by now). Everything you'll find relating to this new standard is, of course, public domain so please help get the word out by republishing these materials in your newsletters, BBS or other media.

As always, it's when the Macintosh community works together that the best things happen.

The next computer revolution.

If you can hold a pen, you can use a computer. Forget about punching keyboards or chasing a mouse. With the Personal Writer system, all you do is write on paper and your words appear typewritten on screen, instantly!

Whether you want to write text, input figures, or create graphics, you simply pick up your pen and write your computer. Add, delete and correct with the flick of your pen. It even comes with a built-in 100,000 word dictionary that corrects your spelling in a flash.

Pen and paper.

Personal Writer is the system that's as natural as your signature. And as easy to use. Its powerful character recognition software learns to read your handwriting and makes interaction with your computer a breeze.

Whether your needs are in word processing, spreadsheets, data base management, or graphics, the Personal Writer system works for you. Fully compatible with virtually any software on the Mac market, Personal Writer's ease of use will follow you in all your applications. So don't worry about tedious typing. Use the power of your own handwriting.

Call us toll free today for more information at (800) 322-4744 or write us at Anatex Inc., 1801 Avenue of the Stars, Suite 507, Los Angeles, CA 90067. (213) 556-1628. Dealer inquiries invited.

Please circle 61 on reader service card.

Personal Writer is comprised of a tablet and software.

PERSONAL WRITER

Yes! I want to know more about the next computer revolution. Please send more information on Personal Writer today.

Name _____

Address _____

City. State. Zip _____

Phone ( ) _____

Anatex Inc., 1801 Avenue of the Stars
Suite 507. Los Angeles. CA 90067

Call us toll free at (800) 322-4744

DATA FILE

NEW!

YOUR MOST COMPACT BACKUP SOLUTION

RELIABLE Get the security you need by storing in a low noise, triple shielded Data File. Our high quality low noise fan and heat sink case reduces VLSI hot spots and promotes long life. Data File's superior hardware/software with complete error correction capability gives you unsurpassed reliability.

VERSATILE Data File's compact size allows operation on top, next to or under your Macintosh. Even small enough to fit inside your briefcase. Functional in either 110V or 220V modes. Data File allows you the convenience of operation anywhere in the world.

FRIENDLY The newest in archival software provides volume backup and restore for file by file from any volume to any other volume. Data File works like a hard disk you are familiar with. Simple and easy to use, Data File ends the hassle of swapping diskettes.

NuDATA

3206 Scott Blvd.
Santa Clara, CA 95054
(408) 727-1049
(800) 8-DATA-NU

Media Winchester Ltd.
Scotts Valley, CA
(800) 824-7385
(800) 824-7386 CA

Statewide Electronics
Lombard, Illinois
(800) 882-8311
(312) 932-5650

Tech South Inc.
A Bell South Company
Tucker, Georgia
(404) 939-9379

Please circle 21 on reader service card.

Steven Bobker

We're always happy to hear from our readers, so keep sending your comments to Letters to the Editor, MacUser, *25 West 39th Street, New York, NY 10018. All letters become the property of* MacUser *and we reserve the right to edit any letters that we print.*

AN AKER OF PRAISE

I have just finished reading two reviews of the same product, one appearing in *MacUser* and one in "another" Macintosh magazine. The product is Microsoft's *BASIC Compiler* and the winner is Sharon Zardetto Aker and *MacUser* magazine. Her review was very good. It included the important stuff (commands, compile time, error handling and interface issues), as well as the peculiarities of the product that can mean a great deal to a potential user—such as the strange window that appears just after a compiled application is launched. Not only did the competing magazine fail to mention any of these issues, it led me to believe that Microsoft's *BASIC Compiler* was more or less equivalent to Zedcor's *ZBasic Compiler*, which it clearly is not. It further enraged me by concluding that a potential BASIC buyer should carefully research the available products before buying one. That's what I thought I was doing when I bought the magazine.

I subscribe to many computer publications and I spend a great deal of time reading every one. I read them exclusively for the product reviews and I want to be able to take those reviews seriously. Thanks again to Ms. Aker and *MacUser* for telling me just what I needed to know about a new product.

CARL BROOKS
BOSTON, MA

MIMEOGRAPHING ON THE MAC

Just got my July 1987 *MacUser* and in reading Dan Cochran's "Help Folder" find that I have the answer to Lloyd Fowler's question on mimeographing using the Mac.

Look up the nearest A. B. Dick office and ask for #2060 stencils. These are specially made for electric typewriter and computer printer use; the stencil material seems thinner and harder than regular stencils.

As the mimeograph machine will not print out on the page as the ImageWriter, you must be careful to keep copy inside the border printed on the stencil. I print a draft, slide it between the backing and the stencil to see if all copy is inside the border. After you do several stencils you have a feel for what you can and can't do.

Print the stencil in manual or cut sheet mode with the printhead adjusted all the way out (as if for four sheets of paper). *Do not take the ribbon out!* After printing the stencil, move the printhead back to normal and print a copy on paper to clean the head surface.

I live in a mobile home park of some 800 homes and we put out a flyer every week. We have just two requirements: cheap (not inexpensive, cheap!) and readable. I have been doing flyers this way for over a year on the Mac using both the ImageWriter I and ImageWriter II and have had no problems yet.

It certainly shows the Mac's flexibility.

ROGER LANDON
SUNNYVALE, CA

HELP COLUMN HELPS

Just a note of thanks. I wrote to Dan Cochran about a problem I had with my Mac 512 and its HD 20. My question and his complete and informative answer were printed in your May 1987 issue. Armed with this information, I solved the problem in 5 minutes.

E. R. LUTER
DALLAS, TX

CRICKET IS NOT BUGGED

Your May 1987 "Bug of the Month" noted that *Cricket Graph* has "a rather serious" problem in that it "does not properly graph data points in a list in the order in which they occur in that list."

Note that in most statistical applications the order of the records in the file is irrelevant. Therefore, a properly designed statistical graphics program *should* ignore that order. *Cricket Graph* follows this common practice and should not be "fixed" as the piece implied.

Even though *Cricket Graph* is a poor tool for "graphing" a circle, it can still do it. First cut and paste to restructure the data set given in the article so that it becomes:

A	B-POS	B-NEG
1.00	0.00	0.00
0.92	0.38	-0.38
0.71	0.71	-0.71
0.38	0.92	-0.92
0.00	1.00	-1.00
-0.38	0.92	-0.92
-0.71	0.71	-0.71
-0.92	0.38	-0.38
-1.00	0.00	0.00

Then choosing variable A for the X axis and variables B-POS and B-NEG for the Y axis will generate the circle. The lines and plotting symbols can then be changed so that the circle's top and bottom look the same.

RALPH G. O'BRIEN, ASSOC. PROF.
UNIV. OF TENNESSEE, STAT. DEPT.

THREE OF A KIND

Good news and upgrades come in threes. While I was debating whether to buy CLR libraries for *Microsoft BASIC,* Microsoft bought them, added more features and sold me the upgrade for $25. Well, you expect service from a big company like Microsoft. Next, though, my *Strategic Conquest* went bad. Knowing that copy protection doesn't stop thieves, I assumed the purpose was to force legal users to buy extra copies. No. For $15 PBI replaced my old version with the new version, which added a multiplayer feature, digitized sound and more. The final good news came from Symmetry, who are upgrading my copy of *Acta* free! All three companies deserve recognition for good service.

WALTER BAYS
HOUSTON, TX

GETTING IT OFF YOUR CHESS

Concerning Neil Shapiro's article on *Chessmaster 2000* in the July, 1987 *MacUser,* I want to point out that the strongest commercially available chess computers are probably the Mephisto computers. 6 months ago they used the *Dallas* program, with an estimated Elo rating of 2250. All feature auto-sensory chess boards. They can be bought from ICS—(800) 645-4710 or (516) 221-3000—for about $1000 to $2000, depending on the model. Whereas this is a lot of money, you have to take into account that they are consumer upgradeable and the Novag computers are not. (Novag also has stronger computers than the Forte on the market.)

BELINDA MORRISSEY

COPY II® for Apple Macintosh

NEW! Version 7*

BACK UP PROTECTED SOFTWARE.

Copy II has the built-in power and flexibility to handle most protection schemes—automatically!

GIVE YOUR MAC MORE MUSCLE.

Copy II includes MacTools. This comprehensive set of utilities can repair some damaged disks. Version 7's more powerful undelete can often recover the file, including name, type and creator and even works with hard disks.

Fully supports any Macintosh with 512K memory, H.F.S., M.F.S., 400K & 800K disks, 1 or 2 drives, hard disks and all available memory.

*Registered owners may update for $15 plus $3 s/h.

EVEN RUNS SOME PROTECTED SOFTWARE FROM YOUR HARD DISK.

Our Copy II Hard Disk feature lets you copy some of the most popular business software from a 400K to an 800K disk or direct to your hard disk! Call for current list.

CALL 503/244-5782

8-5 West Coast time, M-F, with your in hand. Or send a check for $39.95 U.S. plus $3 s/h, $8 overseas.

$39.95

Central Point Software

INCORPORATED
9700 S.W. Capitol Hwy., #100
Portland, OR 97219

2-Time Winner of A+ Readers' Choice Awards!

Backup utilities also available for IBM, Apple II, Atari ST and Commodore 64/128. MU-10

NOW! 800K drives for the Mac: $225 & $10 s/h. Plugs directly into Mac 512e, Mac SE & Mac Plus!

Please circle 105 on reader service card.

CHEST TOP PUBLISHING™ IS HERE!

Kit includes: 750K of Fun and Outrageous T-Shirt Art . . . 8 Fabric Crayons . . . "How To" Book . . . and a Free Imagewriter™ UnderWare® Ribbon.

*See Your Mac Software Dealer, or call **800 223-5537** - at tone dial 299 172*

(Visa, Mastercard, American Express)

Unison World

P.O. Box 3826, Berkeley, Ca. 94703

Please circle 211 on reader service card.

I think you miss a point in your article. It makes sense to go for a program with a rating of 2250 instead of one rated at 2100 even if your own rating is only 2000 because it means you can play against the computer at a lower level and save your time. Better programs are more likely to come up with a sounder evaluation of position (even on a lower level) and are therefore more interesting to play against.

I'm not so sure that *Chessmaster 2000* is so much stronger than *Sargon III*. *Chessmaster* seems to be poor at finding long lines.

H. ABERG
HIGHLAND PARK, NJ

CAVEAT EMPTOR

John Dvorak's column in your July 1987 issue was masterful. I thought I was the only one "too cheap" to be able to afford a Mac. I love the machine (except for *Word* 3.0) and I am happy to be able to dabble with it. However, I now know what it is like to live in a ghetto and watch *Dynasty*. All of those wonderful baubles and trinkets and all I can do is gaze longingly.

Dvorak has freed me from Macintosh bondage and given me the OK to look at an Atari or Amiga. Maybe they are truly the computers for "the rest of us." Lest you wonder at this heresy, my business partner always proceeds me by 10 paces proclaiming to the unwary, "Beware. Beware. A Macintosh missionary doth approach." I guess I'll soon be defrocked. (Unless Microsoft causes me to become disillusioned first.)

JOHN M. ZWIEBEL
LAFAYETTE, CO

While we see your budgetary point, we'd like to suggest that, rather than falling at the feet of some false idol, you should ask for a raise.—LK

OBJECTIVITY IS SUBJECTIVITY?

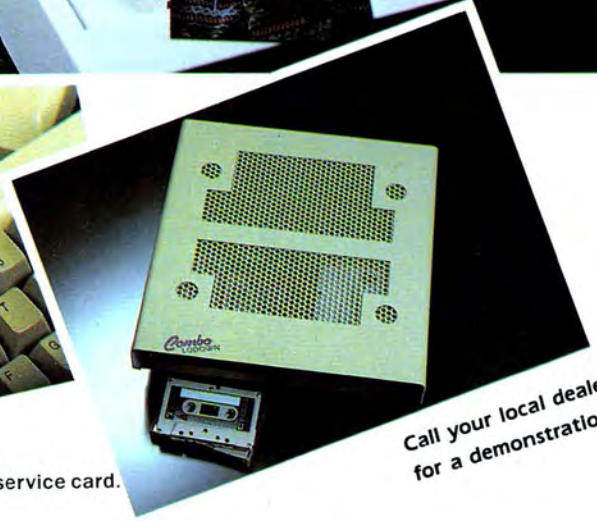
I've often heard it said that *MacUser* is more objective in reviewing products than other Macintosh magazines. Therefore, I was quite surprise by your two reviews of Microsoft *Word* 3.0 in the March 1987 issue. Neither of these write-ups mentioned a large flaw in the new *Word* or at least two other annoyances. In general, I love *Word* 3.0, but Microsoft's change in the print strategy to the LaserWriter was a major mistake. The problem is that although PostScript has a command to print multiple copies of a page, *Word* 3.0 will regenerate each copy of the page individually, rather than letting the printer do the work. This is a

Here's The Latest

- Image•Scanner 300 dots per inch Flat Bed and Sheet Feed Scanner with Gray Scaling
- OCR Software with trainable fonts also supports LaserWriter fonts
- Optical Products 400 and 800 MB WORM (Write Once Read Many)
- CD Rom Development System and CD Rom Drive 600 MB of Digital Data and/or 70 minutes of Audio per inexpensive Compact Disc

LoDOWN

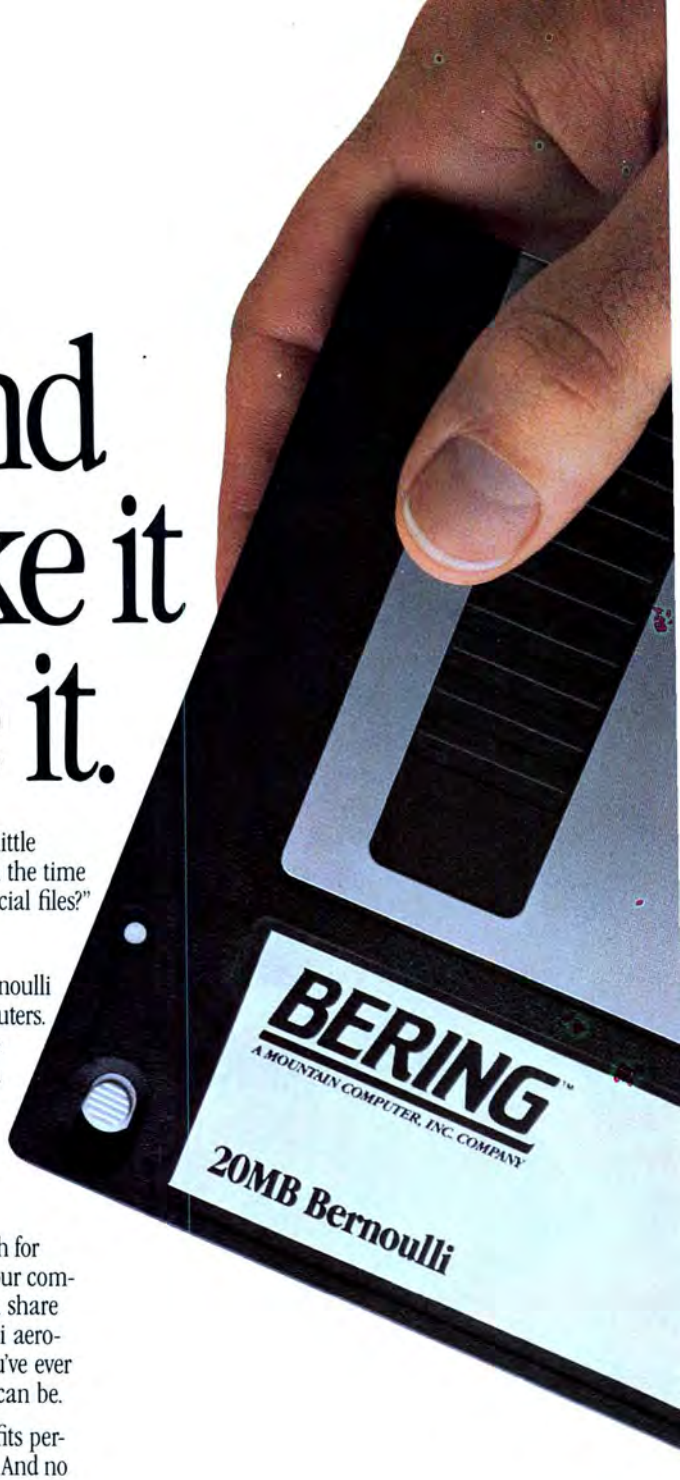
LoDOWN
10 Victor Square, Suite 600
Scotts Valley, CA 95066
(408) 438-7400
Telex 5106007873
DEALER INQUIRIES WELCOME



Please circle 15 on reader service card.

Call your local dealer for a demonstration

Ten thousand pages, take it or leave it.



For those of you going places, here's a little something that solves big storage problems in the time it takes to say "who has the Farnsworth financial files?"

Introducing Totem.™

A rather revolutionary Bering 20 mb Bernoulli compact disk drive system for Macintosh computers. And, the first truly *portable* 5¼" system. One that lets you tote around 10,000 pages of data on a sleek cartridge about the size of a piece of bread.

Translated, that's 25 times the storage you get on one standard floppy.

Yet unlike floppies, the Totem is no slouch for speed. It's just as fast as a hard disk. In fact, your computer will think it's a hard disk. You can even share it with co-workers. And its advanced Bernoulli aerodynamics make it resist head crashing. If you've ever used hard disks, you know what a pain that can be.

But the real beauty of Totem is that it fits perfectly right under your Mac. No mess. No fuss. And no extra hardware to buy. To add storage, just pick up another Totem cartridge.

Last, but certainly not least, there's a whole family of Totem drives to choose from. They're all in the brochure. To get yours, write or call Bering Industries, Inc., 280 Technology Circle, Scotts Valley, CA 95066. Inside California, call 800 533-DISK. Call 800 BERING 1 outside California. Just say "I'll take it."

BERING™
A MOUNTAIN COMPUTER, INC. COMPANY

Totem is a trademark of Bering Industries, Inc.
Macintosh is a registered trademark of Apple.

Please circle 7 on reader service card.

change from the old *Word* and causes *Word* 3.0 to be unusable for publishing multiple copies on the LaserWriter—and isn't this what desktop publishing is all about? The other two problems are that not all fonts in your *System* file will be seen by *Word* 3.0 (this is the same as the older versions), and the indexing option is done totally in memory (not disk-based) and thus the size of your index (or the number of occurrences of each key word) is limited.

I hope Microsoft fixes the printing problem soon, in a free update, and considers recognizing more fonts. As for the indexing problem, I may have to go back to my old indexing program.

KAREN L. COHEN
MILFORD, PA

Because of the interest and anticipation level surrounding Word *3.0, we broke our normal rule and reviewed it in beta—as we indicated in the two articles. The number of letters we've received as well as our own experience have convinced us once again that the rule was a good one.*—LK

Armed with information from Dan Cochran's column I solved my problem in 5 minutes.

DOING IT IN STYLE

I find it interesting that the developer of *Word Tools* (David Barrett of Aegis Development), the producer of a product that promises to be the final arbiter of proper writing style for all Mac users, admits that "style is very subjective." I trust that his opinion will not affect the ability of the program to accurately determine "what's hot and what's not."

CARL J. MADSON
MENLO PARK, CA

In these subjective matters, it's always best for you to rely on your own judgment. But if you want to know what I think, see the review of Doug Clapp's Word Tools *in the last issue.*—LK

AND SHAME THE DEVIL

Your Editor-at-Large, Neil Shapiro, wrote one of the best columns of computerdom: "Copyright—Copy Wrong" (May 1987). As a copyright and computer law attorney and as a Macintosh software developer for GreenLight, I've paid particular attention to the computer press discussions, information and misinformation.

Shapiro reminds us that the software industry needs to reach beyond computer magazine readers to help people understand why copyright laws have been balanced the way they have. Without understanding and respect, our computer and copyright laws are liable to turn blue (as in blue law, not big blue). Illegal copying and use of shareware without paying are violations of federal law. We need to ensure that computer users understand that software piracy and theft discourage new programs, encourage burdensome copy protection and create bad karma.

Another informed column on copy-

CUSTOM DESIGNED REPRINTS

When your product or company is covered by this magazine, you can order custom designed reprints* for use in promotional mailings, sales kits, press releases and point-of-purchase displays.

For more information on how you can take advantage of this wonderful promotional opportunity, call or write: Jennifer Locke— Reprints Manager, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016, 212-503-5447.

*Minimum quantity 500

Please circle 40 on reader service card.

MegaScreen™

The 526% Solution

MegaScreen's 19.5" monitor gives you 526% more design space than your Macintosh™ Computer. Compatible with all standard Macintosh software, MegaScreen lets you see drawings, designs, page spreads, spreadsheets, and just about everything you ever wanted to see larger. 526% larger.

MegaScreen's dual-screen features allow you to run MegaTalk Electronic Mail on your Macintosh screen — at the same time. MegaScreen concentrates on your primary application while letting those important messages flow through to you.

MegaScreen is the most flexible, user-definable video device available. Your local Apple® dealer can install MegaScreen for your Macintosh SE, Macintosh Plus or Macintosh 512kE — usually in less than 15 minutes. You might even add enhancement options, such as co-processors, speed cards and other video outputs.

Ask your dealer for a demonstration, or give us a call. You'll see why MegaScreen is still the best-selling Macintosh large screen system.

microgaphic
IMAGES

Please circle 145 on reader service card.

20954 Osborne St., Canoga Park, CA 91304
818-407-0571 • TX: 650-288-0349 MCIMAIL
MU10

©1987 MicroGraphic Images, Corp. All rights reserved. MegaScreen is a trademark of MicroGraphic Images, Corp.
Apple is a registered trademark, and Macintosh is a trademark of Apple Computer, Inc. MacDraw is a product of Apple Computer, Inc. and is being used with express permission.

right appeared in the same issue. John Dvorak is the only columnist I've encountered who has noticed that "look and feel" copyright was not created to confuse software developers, but originated in a 1970 greeting card case. It makes no more sense to apply "look and feel" to every software development question than it does to attribute every social problem to communists, cat crusaders or Arctic cooling. Dvorak even managed to slip in the second major element of software protection, trademark law, with its key question of likelihood of confusion.

What's the computer columnist community coming to when it's Dvorak, your resident devil, who has the most informed, most reasonable column?

DANIEL KEGAN
CHICAGO, IL

FIND IT HERE

I'm a subscriber to *MacUser* and I really look forward to receiving each issue. I'm a relatively new participant in the personal computer field, and since the area I live in is somewhat provincial in nature, *MacUser* is an important information and reference resource for me.

We have recently made the upgrade from 512K to the Mac Plus, and to a hard disk drive. The MiniFinders section was of inestimable value in helping us make hardware and software choices.

For those of us that don't have the resources of a metropolitan area available to us, yearly or even semi-annual index of the information you publish would be of real value as a reference source.

CARL LADLEY
CARSON CITY, NV

TAXING SITUATION

In the April 1987 "Pinstripe Mac," Robert Wiggins discusses the impact of the Tax Reform Act of 1986 on Macintosh users. Although most of his points are well-taken, we would like to clarify some of the issues he raises.

SoftView is the publisher of two programs related to this article: *MacInTax,* the income tax preparation program, and *MacInUse,* a program that tracks the usage of your Macintosh. Mr. Wiggins mentions that the IRS requires a handwritten log of your computer use to justify business deductions. However, the IRS has confirmed to us that a computer-generated log is acceptable *as is*. Thus, *MacInUse* users do not have to transcribe this information. A log maintained automatically by a computer is likely to be more accurate than a handwritten log.

With regard to using the Macintosh for tax preparation, Mr. Wiggins states that anyone who has prepared their own returns in the past should consider using an accountant this year. While it is true that the Tax Reform Act has made many changes to the tax laws, almost all of these changes relate to the manner in which the tax is computed. Tax preparation programs, such as *MacInTax,* perform these computations automatically. The information that the user must enter into these programs—such as wages, tax withheld and deductible expenses—remains virtually the same from year to year. Thus, anyone who uses a tax preparation program should have little trouble dealing with the new tax laws. SoftView will be releasing a *Five-Year Tax Planner* program in June, which should further aid tax planning under the new laws.

SUSAN MORGAN, PRES.
SOFTVIEW

CUSTOM DESIGNED REPRINTS

When your product or company is covered by this magazine, you can order custom designed reprints* for use in promotional mailings, sales kits, press releases and point-of-purchase displays.

For more information on how you can take advantage of this wonderful promotional opportunity, call or write: Jennifer Locke— Reprints Manager, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016, 212-503-5447.

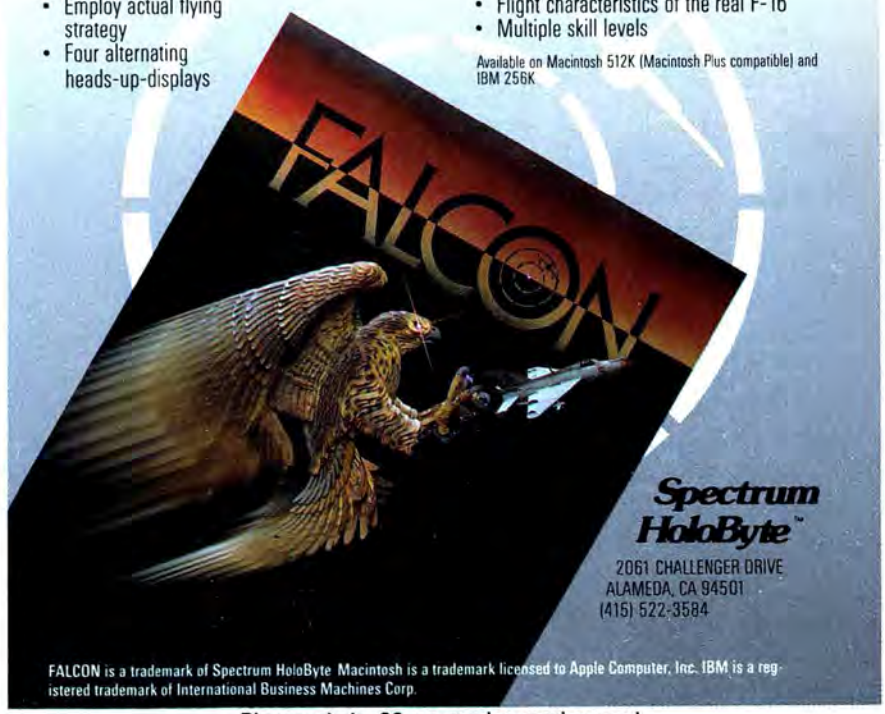
*Minimum quantity 500

LOCK-ON TO EXCITEMENT!

THE F-16 FIGHTER SIMULATION

- Option to dogfight against another player via computer link.
- Employ actual flying strategy
- Four alternating heads-up-displays
- Digitized images of enemy planes
- Advanced radar detection/avoidance
- Flight characteristics of the real F-16
- Multiple skill levels

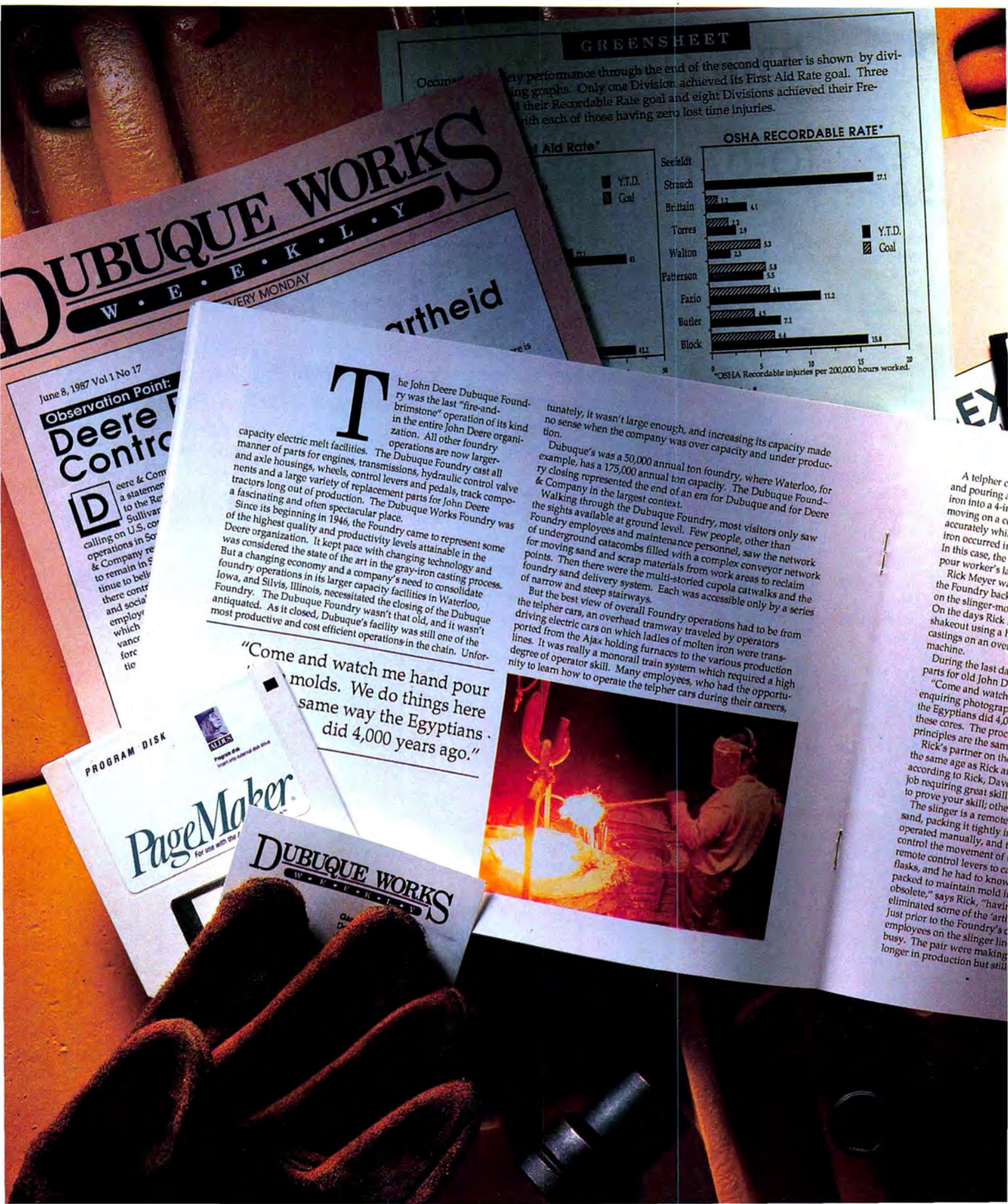
Available on Macintosh 512K (Macintosh Plus compatible) and IBM 256K



FALCON is a trademark of Spectrum HoloByte Macintosh is a trademark licensed to Apple Computer, Inc. IBM is a registered trademark of International Business Machines Corp.

Please circle 39 on reader service card.

We're Helping De



ere Make Tracks.

John Deere's® Gary Olsen was in a quandary.

As editor of employee communications, he wanted to expand the newsletters and magazines he produced for the people who build John Deere construction equipment at the company's Dubuque and Davenport Works. But he also needed to reduce his publishing expenses.

Then Gary Olsen heard about PageMaker® desktop publishing software.

Already he's using it to make *Tracks* magazine, a weekly newsletter, safety updates, business cards, posters–even a four-color book. All for a fraction of the cost of traditional publishing.

But that kind of success should come as no surprise when you consider that more businesses are producing more of their printed materials with PageMaker than with any other desktop publishing software.

So put PageMaker on your staff today. It'll improve your printed work by leaps and bounds.

For a VCR Version of PageMaker, Call 1-800-33-ALDUS.

To see a full demonstration of what PageMaker can do for you, order our 30-minute VHS tape for just $9.95. Or visit your authorized Aldus dealer.

ALDUS PageMaker®

411 First Avenue South, Seattle, WA 98102 (206)622-5500

©1987 Aldus Corporation. PageMaker and Aldus are trademarks of Aldus Corporation. John Deere is a trademark of Deere & Company.

Please circle 262 on reader service card.

EDITED BY LOUISE KOHL

No Longer On Target

TONY LIMUACO

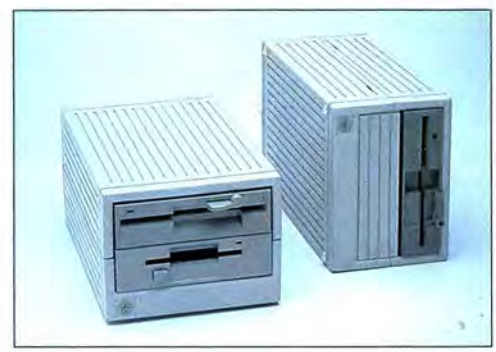
Target Software recently lost their rights to distribute most of their product line. Deneba Software, developers of *MacLightning, Memorandum, Voila!* and the *Merriam-Webster Thesaurus for Microsoft Word* 3.0 decided not to extend Target Software's marketing and distribution license for these products. This decision also affects *Mentor*, another product written by Deneba Systems, that Target had planned to use to replace *MacLightning*.

Deneba will be marketing these products themselves. However, the names of the products will be changing. Deneba cannot use the original names, since the original names were trademarked by Target. The new names are *Coach* for *MacLightning* (and what was to be *Mentor*); *XTRA* for *Voila!*; *Comment* for *Memorandum;* and *Coach Merriam-Webster Thesaurus* for the *Merriam-Webster Thesaurus for Microsoft Word* 3.0.

Both Target and Deneba maintain toll-free numbers and both companies have pledged that they will continue to support all their products. Deneba also plans to deliver all upgrades promised by Target, but will use a special update procedure. Target has not provided Deneba with its list of registered users, so you must re-register your software with Deneba. To do so, simply call Deneba's 800 number and tell them what products you've purchased and their serial numbers (which is on each manual and master disk).

Both companies encourage you to call with any questions you may have regarding this reorganization. Deneba Software may be reached at 7855 NW 12 St., Suite 202, Miami, FL 33126, (800) 6-CANVAS, or (305) 594-6965 in Florida, while Target Software is available at 14206 SW 136th St., Miami, FL 33186, (800) 622-5483 (or 305-252-0892 in Florida).—*DS*

Simultaneous Translation



One of the problems of trying to get the Macintosh into an IBM PC–dominated office has been communications. Until recently the only reasonable way for the two machines to talk to each other was via a direct link. Local Area Networks (LANs) have gone far to provide translation services, but are relatively expensive and require setting up and administration. They aren't the most efficient answer for small scale users.

If you work with limited space or staff or you only need to access the odd MS-DOS disk, the ideal answer would be to just pop your AT or XT disk into a drive attached to your Mac and read it in. Sound farfetched? It's not. If you want an effective, inexpensive translation solution, Dayna Communication has just the thing: DaynaFile.

DaynaFile is an external disk drive that plugs directly into the Mac's SCSI port and lets it read and write to both IBM PC XT formats on both 5¼- and 3½-inch disks. The *Finder* is fully supported and the drive accesses MS-DOS files by way of an HFS-compatible system. All you have to do is pop a disk in the drive and click on the "fat disk" icon when it appears on the desktop. You don't need to type in so much as "dir." Subdirectories show up as folders; files as Macintosh documents. You can edit, change figures or whatever needs doing and save to your Mac or to the original disk. The DaynaFile comes in a single or double drive and is about the same size as the ubiquitous Commodore 1571 drive, only longer. Special translation software is available to deal with some formatting codes that the Mac can't understand directly.

A demonstration of DaynaFile in *MacUser*'s offices pulled everyone away from their desks. And we don't even have to deal with MS-DOS programs. If you'd like to stare in amazement, too, you can get in touch with Dayna at 50 Main St., Salt Lake City, UT 84144; or by calling (801) 531-0600.—*LK*

Designer Apples

Now that you have your Apple computer with coordinated Apple printer and disk drive, wouldn't it be nice to complement them with matching Apple clothes and furniture? Or how about a pair of Apple binoculars, or, better yet, a bottle of Ridge Zinfandel Glen Ellen 1980 with Apple's gold seal of approval? No, I'm not having an Apple nightmare, I'm thumbing through the new Apple Collection catalog, containing over 150 Apple-brand products.

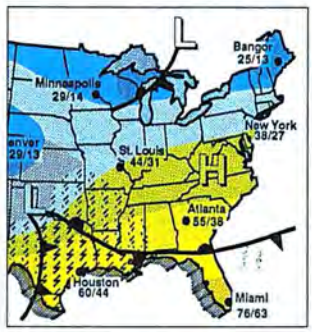
The Apple Collection (not affiliated with Apple Computer) has been marketing Apple label-paraphernalia for a few years. Their new, 1987/88, 36 page catalog is the largest yet. The diversified products range from a compact disk carrying case ($16) and sun visors ($9) to Swiss Army knives ($34), a chocolate mouse ($5.95) and a beautiful, Rona-designed briefcase ($460). The catalog contains 40 wearable items (eight of them for children), plus 14 pieces of jewelry. There are also 22 kinds of carry bags, including a plastic briefcase ($12) and 13 different writing implements.

You can contact the Apple Collection and obtain a catalog by writing to PO Box T, Gilroy, CA 95021-2249, or by calling (800) 345-2888. Did I forget to mention the Apple Spanish leather travel slippers? Good, I meant to.—*DS*

Barometer of the Future

Meteorologists at Weather Central, a forecasting and map service for newspapers and broadcasters, have gotten a big boost by using the Macintosh to draw weather maps. "We cut production time by 75 percent," says Special Projects Director Charles Sholdt. Sholdt and his weather artists use *MacDraw* to place isobars and city temperatures on national and local maps that run in daily newspapers like the St. Petersburg *Times*.

The maps are sent by modem using *PackIt* (to merge the graphics and text) and are available on Knight-Riders' PressLink service. Sholdt, who spearheaded the effort to use Macs at Weather Central, says that in the beginning he couldn't even bring his Mac Plus into the IBM-dominated office. Now, the Mac has a larger share of other office chores, including financial forecasting.—*BT*



Proof of the Pudding

Here's some new evidence that the Mac is penetrating the corporate marketplace. The June 1987 issue of *PC Tech Journal*, the leading technical magazine for IBM PC users, opened with a very interesting editorial regarding the Mac II entering the corporate market. Just having the Mac II mentioned in a positive light in this type of publication is a good part of the battle towards corporate acceptance.

Will Fastie, Editor of *PC Tech Journal*, claimed that Apple will have a tough time selling the machine, partially due to the original image that the overzealous Steve Jobs created for the Macintosh, with its closed architecture and innovative interface. Mr. Fastie thinks that this image is changing, but potential buyers will still have to "get religion" to fully accept Apple as a serious business company. Mr. Fastie goes on to comment that, from personal experiences, Apple is "very businesslike" and "very serious" about business.

PC Tech Journal included, directly next to the editorial, a ballot card asking readers for yes or no answers and to give the reasons why "the new Macintosh machines will be important to your company." We'll tell you the results as soon as we get them.—*DS*

RUMOR MANAGER

The new 10-megabyte floppy drives should be available as you read this. There are actually several different kinds and several manufacturers so you're going to have to make some hard choices. One thing the different types aren't is compatible with each other.

A Palo Alto-area developer has been showing a new utility product he is calling *Cabbage* for the time being. *Cabbage* is going to introduce some radically new ideas in file recovery. This guy really understands the Mac operating system, apparently better than Apple. He claims to have discovered features in HFS that even Apple was unaware of. This wonderful product quickly and, in most cases, easily, recovers trashed and otherwise seriously damaged HFS disks. Yes, it works on hard disks too! About all it has failed to handle is disks with serious physical damage, like sections gouged away (yes, we tried that). At least three major (and-/or very major) software publishers are engaged in a heated bidding war for the rights to *Cabbage*. The product is not yet complete—the interface still needs a *lot of* work—but could be out by the end of the year. And it's likely to be expensive. Since it's relatively small (right now), it is sure to be a contender for the highest price per byte Mac program.

Over 50 percent of all Mac software publisher presidents and CEOs are using custom-painted Macs. They apparently make a very deep impression, especially the wood and stone finish versions. What color is your Mac?

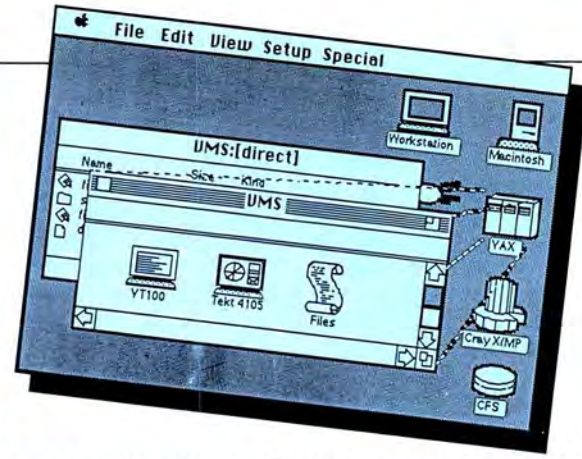
The recent slew of presentation software packages shows no sign of slowing down in spite of what appears to be market indifference. Four more have been announced recently and we've seen a beta of yet another. The hardware slide makers still seem to be the better value in professional environments.

Our Japanese correspondent recently managed to break security at a large Tokyo-area firm and get a look at their new laser engine. It's capable of 3000-dot-per-inch resolution (yes, 3000, not 300), and since it's essentially made of the same parts used in the 300-dpi engines it will cost about the same to make. There are currently no plans to export these gems to the United States until late 1989 (internal Japanese demand is expected to be that heavy), but that may change. And when they do arrive they are going to revolutionize laser printing.

Speaking of revolutions, a full-scale developer revolt against the way Apple is marketing Bill Atkinson's new *HyperCard* seems to be brewing. An awful lot of developers feel that this product is specifically aimed at *their* products, and they're mad, and they're gonna do something about it. Exactly what they're going to do is unclear, but we'll have more for you on this subject next month.

Have you heard any good rumors recently? Can you share them? Does your legal department agree? Will you share them anyway? If we use your rumor we'll send you a token of our appreciation and promise not to use your name. Anonymous contributions also accepted. Contact the Rumor Manager by snail mail or, better yet, electronically. Right now we can be reached on MCI Mail (MacUser), CompuServe (72257,2671) and AppleLink (X0259).

Cray-On the Mac



"We want to bring supercomputer power to the masses," says Barry Fortner of the National Center for Supercomputing Applications at the University of Illinois. In this case "the masses" are thousands of scientists and engineers across the country; the supercomputer is the CRAY X-MP/48 which has a memory of some 8 million words; the terminals are, of course, Macintoshes and the link is software developed by Fortner's group.

NCSA Telnet transfers files from the CRAY at speeds of 230 kilobauds—about 200 times faster than the average 1200-baud modem. But it's the *CRAY Finder* that brings supercomputer power to the Macintosh's icon-based environment. On top of that, *NCSA Imagetool* downloads color graphics from the CRAY and allows images to be flipped through at high speeds.

CRAY Finder and *Imagetool* open up new modeling power for scientists who use the Mac II. Up to now, astrophysicists at NCSA used the Sun workstation, dedicated graphics hardware, to simulate spectacular celestial events such as the collision of two neutron stars. Now the Mac II is replacing the Sun for an all-in-one (word processing, calculation, graphics) terminal hookup to the CRAY.

Apple Computer is subsidizing the Urbana, Illinois-based NCSA work to the tune of $350,000 in equipment donations.—*BT*

UPDATES

Programs, like people, change over time. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version number (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the About... item at the top of the Apple menu.

Apple System software is special. Generally, and unless you have a 128K Mac, you should be running *System* 4.1. and *Finder* 5.5 (128K owners should continue to use *System* 2.0 and *Finder* 4.1). If you don't have the latest *System* and *Finder* you can get them free from an authorized Apple dealer. Be sure to bring in a blank disk or two, though. A full Apple-supplied compatibility chart appears in the "The Help Folder" in the September issue.

All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (this is not a comprehensive list yet); S, shareware (try before you buy software); and 5, requires at least 512K of RAM.

Acta	1.2	NCP,//
AMS General Ledger	2.08	NCP
AppleShare	1.1	NCP
Aztec C	1.06H.1	NCP
Back to Basics	1.03	NCP
Balance of Power	1.03	CP
Business Filevision	1.1	CP
CalendarMaker	2.3	NCP,S
Chooser	3.1	NCP
ClickArt Effects	1.1	NCP,//
Clipper	1.01	NCP
ColorChart	1.3	NCP
ColorMate	2.1	NCP
ColorPrint	2.03	NCP
ComicWorks	1.0	NCP,//
ConcertWare+	4.0	NCP,//
ConcertWare+MIDI	4.0	NCP,//
Copy II Mac	6.5	NCP
Copy II HD	6.5	NCP
Cricket Draw	1.01	NCP,//
Cricket Graph	1.1	NCP,5
Deluxe Music Construction Set	2.0	CP
DesignScope	1.14	NCP,5,//
Disk Express	1.10	NCP,5
Disk First Aid	1.0.1	NCP,5
DiskInfo	1.45	NCP,S
Disk Ranger	3.0	NCP
DiskTop	2.0	NCP
Dollars & Sense	1.4	CP,//
Easy3D	1.01	NCP
Edit	2.1	NCP
ExperCommon Lisp	2.2	NCP,5
ExperLisp	1.5	NCP,5,//
ExperLogo	1.1	NCP
EZ Draft	2.0	NCP,5,//
Fedit Plus	2.0	NCP,//
FileMaker	1.0	NCP,//
FileMaker Plus	2.0	NCP,//
Filevision	1.0	CP
Finder (MFS-128K)	4.1	NCP
Finder (HFS)	5.5	NCP,5
FlashBack	1.4	NCP
Flight Simulator	1.0	CP
Fokker Triplane	1.0	CP
FONTastic	2.7	NCP
Font/DA Mover	3.5	NCP
Fontographer	2.3	CP,5
Frame Mac	1.1	NCP,5,//
FreeTerm	2.0	NCP,//
FullPaint	1.0	NCP,5
Gato	1.42	CP
Glue	1.04	NCP
GraphicWorks	1.1	NCP
Hard Disk 20	1.1	NCP,5
Hard Disk Utility	2.0	NCP,5
Helix	2.0r11	NCP,5
Helix, Double	DH1r35	NCP,5,//
HFS Backup	2.01	NCP,5
HFS Locator Plus	2.0	NCP
Illustrator	1.0	CP/NCP, 5,//
ImageWriter	2.6	NCP
ImageWriter, AppleTalk	2.6	NCP
Insight GL	1.0	NCP,5,//
InTalk	2.11	CP
Jazz	1A	CP,5
JustText	1.1	NCP,5
Laser Author	1.3	NCP,5,//
Laser Prep	4.0	NCP
LaserShare	1.0	NCP
LaserStatus	2.0	NCP
LaserWriter	4.0	NCP
Layout	1.3	NCP,S
Lightspeed C	2.01	NCP
Lightspeed Pascal	1.0	NCP
Lode Runner	1.0	CP
Mac-3D	2.0	CP
MacASM	2.0	NCP
MacBillboard	4.01	NCP,S
Mac C	5.0	NCP,//
MacCalc	1.2	NCP
Mac Disk Catalog II	2.1.1	NCP
MacDraw	1.9	NCP
MacDraft	1.2a	NCP
MacFlow	1.02	NCP
MacGolf	2.0	CP
MacInTalk	1.1	NCP
MacLabeler	2.2	CP
MacMoney	2.02	NCP
MacMovies	1.02	NCP
MacNosy V2	2.55	NCP
MacPaint	1.5	NCP
MacPalette	1.0	CP
MacPascal	2.1	CP
Mac +][	3.0	NCP
MacProject	1.1	NCP
MacProof	2.0	NCP
MacSafe	1.03	CP
MacServe	2.1	CP,5,//
MacSpec	1.3	CP
MacSpin	1.1	CP
MacSpool	2.1	NCP
MacTerminal	2.0	NCP
MacTools (MFS/HFS)	6.5	NCP
MacWrite	4.5	NCP
Mac Zap Copier	4.52	NCP
MailManager	1.0	CP
MapMaker	2.0	NCP
MDS	2.0	NCP
Measure Test	9.10	CP,S,//
Megamax C	3.0	NCP
MicroPhone	1.1	NCP,//
Micro Planner Plus	5.8	CP
MindWrite	1.0	NCP
miniWriter	1.39	NCP,S
MockPackage+	4.3.4	NCP,S
MORE	1.1C	NCP,//
MPW	1.02	NCP,5
MS BASIC	3.0	NCP
MS BASIC Compiler	3.0	NCP
MS Chart	1.0	CP
MS Excel	1.04	NCP,//
MS File	1.05	CP
MS Fortran	2.2	NCP
MS Word	3.01	NCP
MS Works	1.0	NCP
Multiplan	1.1	NCP,//
MusicWorks	1.1	CP
myDiskLabeler	2.11	NCP
Neon	2.0	NCP
Omnis III Plus	3.24	CP,//
OverVUE	2.1	NCP,//
PackIt III	1.3	NCP,S
PageMaker	2.0	NCP,5
Parameter Manager	1.092	NCP
PictureBase	1.2	NCP
Plains and Simple	4.1	NCP,5,//
PowerStation	1.0	NCP,5
Profit Stalker II	1.3	NCP
QUED/M	2.0	NCP
Quick & Dirty Util., Vol. 1	1.6	NCP
Quick & Dirty Util., Vol. 2	1.1	NCP
Rags to Riches	3.0	CP,//
RagTime	1.1	CP,//
Ready, Set, Go! 3	3.0	NCP,//
Record Holder	2.1	NCP
REdit	1.2	NCP
Red Ryder	9.4	NCP,S
Reflex	1.01	NCP
ResEdit	1.1d12	NCP,//
Sargon III	1.0	CP
SideKick	2.0	NCP
Silicon Press	1.1	NCP
Slide Show Magician	1.3	CP
Smartcom II	2.2B	NCP,//
SoundCap	4.4	CP
SpellNow	1.0	NCP
Spellswell	2.0	NCP
StatView 512+	1.1	NCP
StatWorks	1.2	NCP,//
Stella	1.3	CP,5,//
Straight Talk	2.08	NCP,//
Studio Session	1.4	CP
SuperPaint	1.00	NCP,5,//
Switcher	5.1	NCP,5
System (MFS-128K)	2.0	NCP
System (HFS)	4.1	NCP
Telescape Pro		
VT100	1.0	NCP
Tempo	1.1	NCP
ThinkTank 512	1.3	NCP
Thunder!	1.0.1	NCP
ThunderScan	3.4	NCP
TML Pascal	2.01	NCP
TMON	2.614	NCP
Top Desk	2.3	CP
Turbo Maccountant	2.0	NCP,//
Turbo Pascal	1.0E	NCP,//
VersaTerm	3.0	NCP
VersaTerm Pro	2.0	NCP
VideoWorks	1.1	NCP
VIP	2.0	NCP
Widgets	2.0	NCP
WorksPlus Spell	1.0A	NCP
WriteNow	1.0	NCP,//
XPress	1.04	CP,5
ZBasic	3.03	NCP

EUREKA: The Solver: Solves your mathematical equations instantly

The state-of-the-art answer to any of your scientific, engineering, financial, algebraic, trigonometric, or calculus equations = Eureka: The Solver™

Eureka can solve most equations that you're likely to meet. So you can take a mathematical sabbatical.

For anyone who works routinely with equations. In calculus, trigonometry, statistics—any of the most complex mathematics. Solutions synthesized with power and speed. No other software even *attempts* what it can do . . .

Eureka represents the thrill of discovery—on command. For scientists, engineers, and mathematicians. For analysts, forecasters, and planners. For professors, researchers, and students.

Most problems that can be expressed as linear or non-linear equations can be solved with Eureka. Eureka also handles maximization and minimization, plots functions, generates reports, and saves you an enormous amount of time.

Eureka instantly solves equations that would've made the ancient Greek mathematicians tear their hair out by the square roots—and it's all yours for *only $195.00.**

It's easy to use Eureka: The Solver

1. Enter your equation into the full-screen editor
2. Select the "Solve" command
3. Look at the answer
4. You're done

You can then tell Eureka to

- Evaluate your solution
- Plot a graph
- Generate a report, then send the output to your printer, disk file or screen
- Or all of the above

*Introductory price

You can key in:

- ☑ A formula or formulas
- ☑ A series of equations—and solve for all variables
- ☑ Constraints (like X has to be < or = 2)
- ☑ A function to plot
- ☑ Unit conversions
- ☑ Maximization and minimization problems
- ☑ Interest Rate/Present Value calculations
- ☑ Variables we call "What happens?," like "What happens if I change this variable to 21 and that variable to 27?"

Eureka: The Solver includes

- ☑ A full-screen editor
- ☑ Pull-down menus
- ☑ Context-sensitive Help
- ☑ On-screen calculator
- ☑ Automatic 68881 co-processor chip support
- ☑ Powerful financial functions
- ☑ Built-in and user-defined math and financial functions
- ☑ Ability to generate reports complete with plots and lists
- ☑ Polynomial finder
- ☑ Inequality solutions
- ☑ Supports Macintosh II color monitor

Minimum system requirements:
Any Macintosh with at least 512K.

Eureka The Solver is a trademark of Borland International, Inc
Copyright 1987 Borland International BI-1139A

BORLAND INTERNATIONAL

For the dealer nearest you or to order by phone

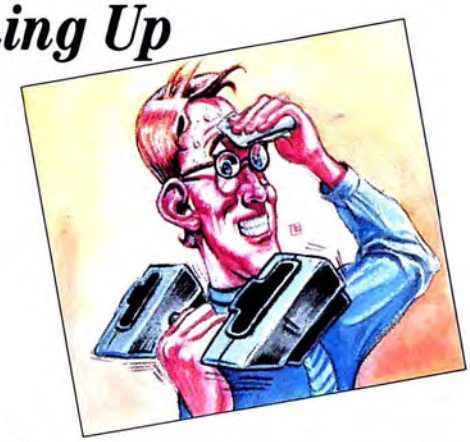
Call (800) 255-8008

In California: (800) 742-1133
In Canada: (800) 237-1136

BORLAND

Please circle 158 on reader service card.

Toning Up



Continually changing the cartridge in a LaserWriter can become an expensive proposition. If your LaserWriter uses a toner cartridge once a month, the yearly bill can be over $1,000. The Laser Connection, a subsidiary of QMS, believes they have the solution with their Toner Refill Certificate Program.

As your toner cartridge comes to its end, simply go to your nearest dealer and buy the Toner Refill package. In the package you'll find a prepaid refill certificate, a claim stub (for your records) and mailing label (preaddressed to the refill plant). Your nearly empty cartridge is shipped to the refilling plant in New Jersey. The Laser Connection claims that their special refilling process gets 50 percent more black toner or 25 percent more blue in each refill. Only a few days, after you send it, it'll be back in your hands, ready to churn out more copies.

The refills are available in two colors: $69 for the black, $79 for blue. Shipping to the plant is extra; return shipping is included in the prices. Each cartridge can only be refilled twice and the Laser Connection won't refill any cartridges that have been previously refilled by other manufacturers.

To locate your local dealer or to find out more about their products, write to the Laser Connection at PO Box 850296, Mobile, AL 36685, or call them at (800) 523-2696.—*DS*

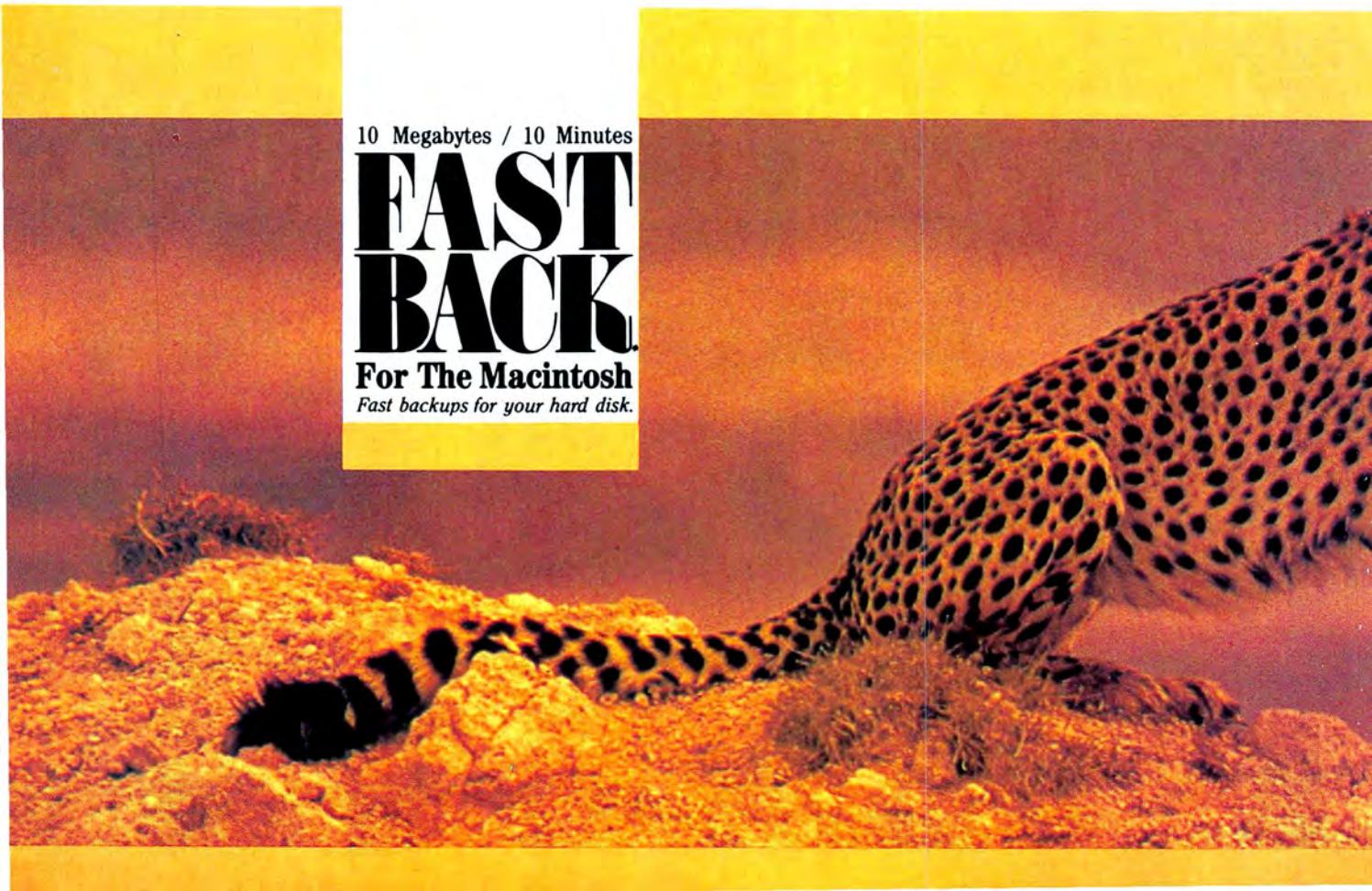
DIALOG BOX OF THE MONTH

Please put the disk: "There are problems with this disk. Please try a different one." into the drive.

We've seen some unusual disk names in our time, but "There are problems with this disk. Please try a different one" as a disk name? I don't think so. It appears that this dialog box, which started off in *MacTools,* the utility package by Central Point, got jumbled and confused on its way to the screen.

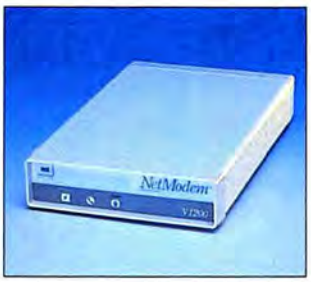
Have you come across any unusual dialog boxes lately? Share them with us by sending a screen dump to MacUser Dialog Box, c/o MacUser, 11 Davis Drive, Belmont, CA 94002.—*DS*

TONY LIMUACO



Investing in Shares

Two new products, *ModemShare* and NetModem, may do for telecommunications what *LaserShare* is doing for laser printing. Each product allows several computers linked by AppleTalk to share one modem. This strategy may save small companies several hundred dollars in additional modem and phone line installation costs.



ModemShare runs over an AppleTalk network with a Mac and modem dedicated as a server. It reportedly supports most telecommunications programs, but beta testing indicates problems with older applications like *MacTerminal*. It can run in either the background or foreground of both a Mac and an *AppleShare* file server.

NetModem is actually a 1200-baud modem that can also be accessed by a Mac over an AppleTalk network. The modem's status display with its blinking LEDs is simulated on the menu bar. A nice realistic touch is that you can hear dial tones and busy signals on the remote Mac so you know when and if a connection is being made.

ModemShare is marketed by Mirror Technologies, 2209 Phelps Rd., Box 304, Hugo, MN 55038, (800) 328-6795, and retails for $200. NetModem is available for $599 from Shiva, 222 Third St., Suite 1200, Cambridge, MA 02141.—*BT*

Correction

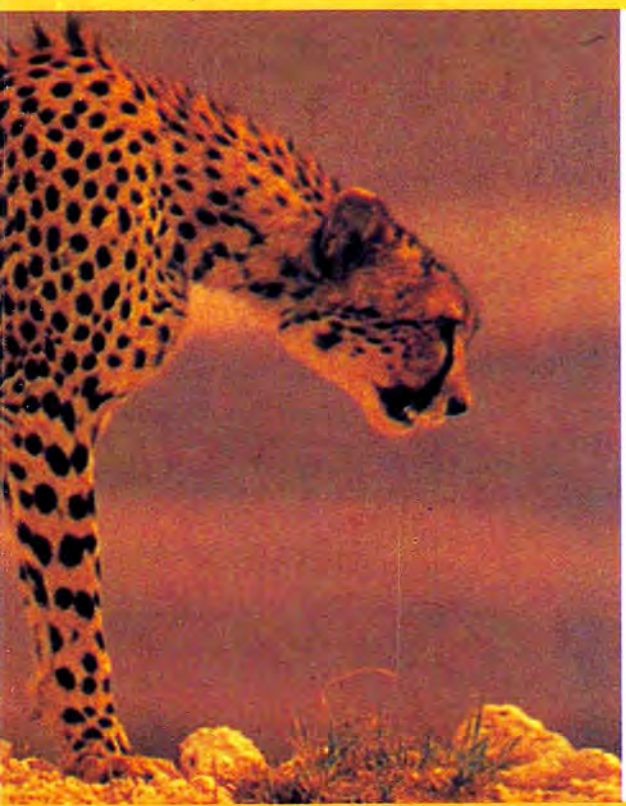
The July Quick Click on the CMS S-140 SCSI Hard Disk incorrectly states that *Hard Disk Partition* from FWB Software comes with the hard disk. CMS' original plans to market the program along with its hardware were dropped after *MacUser* went to press. CMS does recommend *Hard Disk Partition*, which is available from FWB Software, 2040 Polk St., Suite 215, San Francisco, CA 94109, 415-474-8055 for $54.95.—*BT*

BUG OF THE MONTH

This month's bug is simple, yet deadly and can easily lock up your computer, forcing you to reboot. The culprit application is *Turbo Pascal*, version 1.00, by Borland International. Finding the bug requires all document windows to be closed, so it's not possible to lose your files.

Once you are in *Turbo Pascal*, close all open windows. Then hit any key on the keyboard. You'll have to reboot once that's done, because the system is now frozen; nothing will function.

The (un)lucky programmer who discovered this bug is Tim Votaw of Anaheim, CA. Look in the mail for your $25 check, Tim. Send any bugs that you may have stumbled upon to Bugsy, c/o *MacUser*, 11 Davis Drive, Belmont, CA 94002. Always remember to include all of the related details, including what *Finder* and *System* versions were used, what non-standard DAs were installed, etc., and exactly what you did to get the bug to appear.—*DS*



UNLEASH THE POWER

Now for Macintosh!

Speed, accuracy, and power. Now Fastback, the leader in disk backup software, is available for the Macintosh.

Fastback for the Macintosh is the **only** program that can back up a full 10-megabyte hard disk in less than 10 minutes! This can mean an over 85% savings in time and money! Fastback is also the **only** program that uses advanced **error correction** techniques to recover data from damaged backup disks. And Fastback is **powerful** -- you can backup all your files, select folders and files for backup, or have Fastback select only the files which have changed.

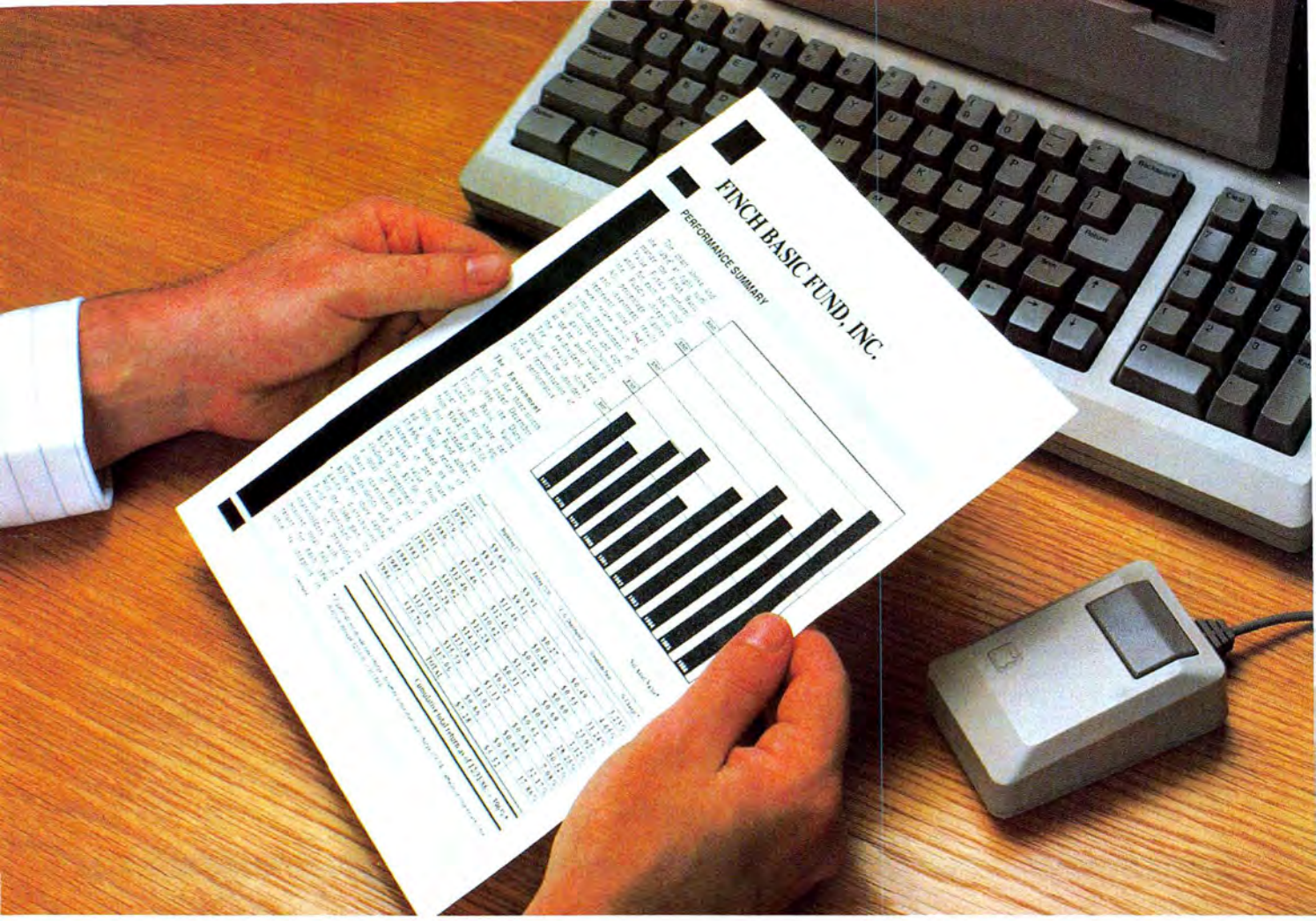
Protect the data on your hard disk now. Remember, among those who use hard disks on their Macintosh systems, there will only be two types -- those who use Fastback, and those who wish they had! See your dealer today, and unleash the power of Fastback as your Macintosh defense!

Fifth Generation SYSTEMS, INC.

11200 Industriplex Blvd., Baton Rouge, LA 70809, **Sales Office:** 2691 Richter Ave., Suite 107, Irvine, CA 92714 **(800) 225-2775 (714) 553-0111**

• This product is in no way associated with or has origination in Fisher Scientific or Allied Corporation.
Macintosh is a registered Trademark of Apple Computer Inc.

Please circle 146 on reader service card.



ARE YOUR DOCUMENTS MISSING THE PROFESSIONAL TOUCH?

Discover Ragtime 2 Document Processing

Thousands of serious business professionals have already discovered that only document processing contains all the tools needed to create impressive proposals, reports, financial presentations, manuals, even annual reports. The secret of Ragtime 2 is that the elements of word processing, spreadsheets, desktop publishing (page layout), and graphics management, seamlessly co-exist on a single page. As never before, you can freely move through the document updating numerical data and formulas, processing text, altering formats and redefining page layout. All at one time, all in one program! This is the Ragtime professional touch.

RAGTIME™ 2
Document Processing

Business Has a Choice

To choose software for document processing, you naturally set high standards. You must have superior page layout (MS WORD doesn't). You demand word processing (sorry, PageMaker). You require spreadsheet (RSG3! stops short). And finally, you need a fluid ease-of-use, which only comes from software where everything has been carefully integrated.

MacWorld magazine made it's choice clear, "Ragtime's number crunching power and page processing versatility are well suited for the production of business plans, financial plans and technical documents."

For premier document processing software, Ragtime 2 is the choice for business professionals.

The Tech Side

Just in case it all sounds too good to be true, we aren't afraid to give you the technical specifications. Ragtime 2 has automatic hyphenation, spell checking, kerning, full spreadsheet with 253 x 253 cells, overlapping frames, automatic text wrap-around, snap-to grids, color and gray scales, mail merge, import TIFF and EPS graphic files, import Excel, Word, and MacWrite files, interlinked spreadsheet, 55 mathematical formulas, forms generation and more.

Order Now: 30 Day Money Back Guarantee

We guarantee it so you can't lose. To order direct from Orange Micro call:

(800) 223-8029
(714) 779-2772 in CA

Or contact your dealer for a demonstration.

Special Opportunity to try Ragtime

Send a check for $10 or call us with your favorite charge card. You'll receive:

- A Ragtime Evaluation Disk
- Sample Documentation
- **FREE** Mouse pad ($10 value)

Orange Micro® Inc.
1400 N. Lakeview Ave., Anaheim, CA 92807
(714) 779-2772 Telex: 5101001014 ORANGE MICRO

© Orange Micro, Inc. 1987. PageMaker is a trademark of Aldus Corp. Word is a trademark of Microsoft Corp. ReadySetGo3! is a trademark of Manhattan Graphics.

Please circle 237 on reader service card.

by Robert R. Wiggins

Overpower Your Mac

There's a new sickness spreading across corporate America: speed lust. Normally calm and sedate accountants, marketing types and finance wizards start palpitating and slavering when the conversation turns to the Macintosh II. "The 68020," one chortles. "The 68881," another whispers longingly.

And it's not only the Mac II. Since the Mac II has been in short supply, the Mac SE has been filling their days with loving talk of accelerator boards. [*Editors Note: An accelerator board is an add-on (or add-in) product that puts a fast 68020 CPU (like the one in the Mac II) in your SE. Most add more RAM and other goodies. They range in price from $895 to $2000, depending on manufacturing and features.*] Nor is it just the computers these speed freaks are lusting after. They sit in darkened bars after work and compare hard disk access times and toast 9600-baud modems.

The Macintosh, which began life as a "toy" to these very same people, has suddenly become the springboard to the raw speed they all want. The question is, do these people really need this speed they're perpetually seeking? The answer, for the most part, is no.

For some strange reason, in March the Mac Plus didn't just go from being the top of the Macintosh line to the bottom of the line. In most people's minds, it disappeared from the line completely. The decision tree most purchasers follow only has two main branches: the Mac SE and the Mac II.

Admittedly, the Macintosh II does a lot to obscure its lesser siblings. The Mac II is a sexy machine. It may not look like a lot, but boy, can it fly! And then there's color. Pure sex appeal. It's no wonder that the speed freaks go nuts over this machine, since it has so many other capabilities in addition to its raw speed. But it is expensive.

The SE, on the other hand, has the simplicity of the Plus, but with a fan and optional internal hard disk. And with some minor improvements, the SE is about 20% faster than a Plus. Hardly enough for the speed freaks. But the SE also has that slot just begging the speed freaks for an accelerator card.

What about the lowly Plus, forgotten in the quest for speed? Well, not completely forgotten, since there are even some accelerator cards for it. But for the most part, when it comes time to buy a new machine, it is an SE or a II, and seldom a Plus.

And herein lies the problem: Business users are spending too much money on equipment they don't need. They are literally overpowering their Macs in the madcap race for speed—and wasting the company's money in the process.

Item: At least 90% of all business users have absolutely no need for a Macintosh II. They don't need color. They don't need all the slots, and they don't need the memory. Most of all they don't need the compatibility problems and other assorted headaches the Mac II brings along with the power and glory.

Item: At least 75% of all business users have no need for an accelerator card. The 25% with a possible justification are the bean counters, number crunchers and modellers, and in many cases even they could live without it.

Item: At least 50% of all business users have no need for an expansion slot at all. And for those who do, the number one card that should be slipping into these slots is not an accelerator card—it's a communications card such as the Avatar 3278 card or an Ethernet card.

There are reasons to get a Mac II or SE. But make sure you really need one—or will need the extra capabilities in the future—before committing the company's money. Instead of embarking on a pointless quest for speed, think twice the next time a purchase order comes through. Think about the Mac Plus, which a year ago was enough to make most anyone happy. And save the company some money. Think, even, about a used Mac Plus, and save the company *more* money. Slow down. Speed kills, and in this case what gets killed may be your career when the departmental budget goes out of control due to all the speed freaks.

MEA CULPA

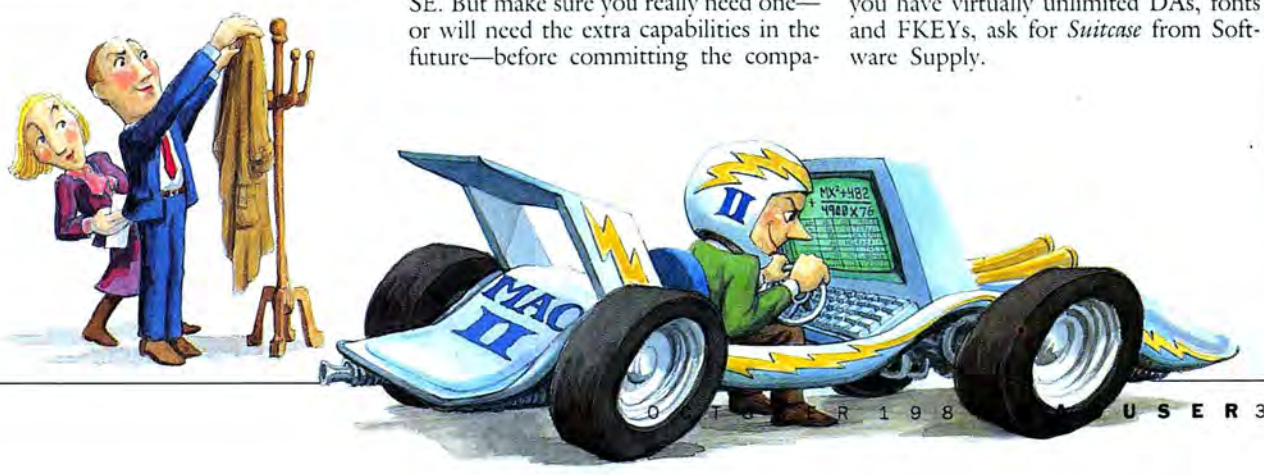
In my July column I blasted magazines (including this one) for reviewing prerelease software. Then in my Pinstripe Picks in the very same column, I picked *Red Ryder* 10.0, which, as you may know, was not yet available at the time the column appeared. So I am guilty of the very same crime for which I was lambasting everyone else.

As a weak defense, let me say that I had been using an early developmental version of *Red Ryder* 10.0 for many months which had so few bugs that even if it had been released unchanged I would have still been able to recommend it. And knowing Scott Watson, I knew the final version would only be better, so I felt safe in recommending it. My timing, however, was off, and Scott spent some extra time polishing it, so my pick was premature.

My apologies to everyone who was put out by my overeager recommendation. My special apologies go to Don Killian over at the Freesoft Company, who lost his voice explaining my error to the many people trying to order version 10.0.

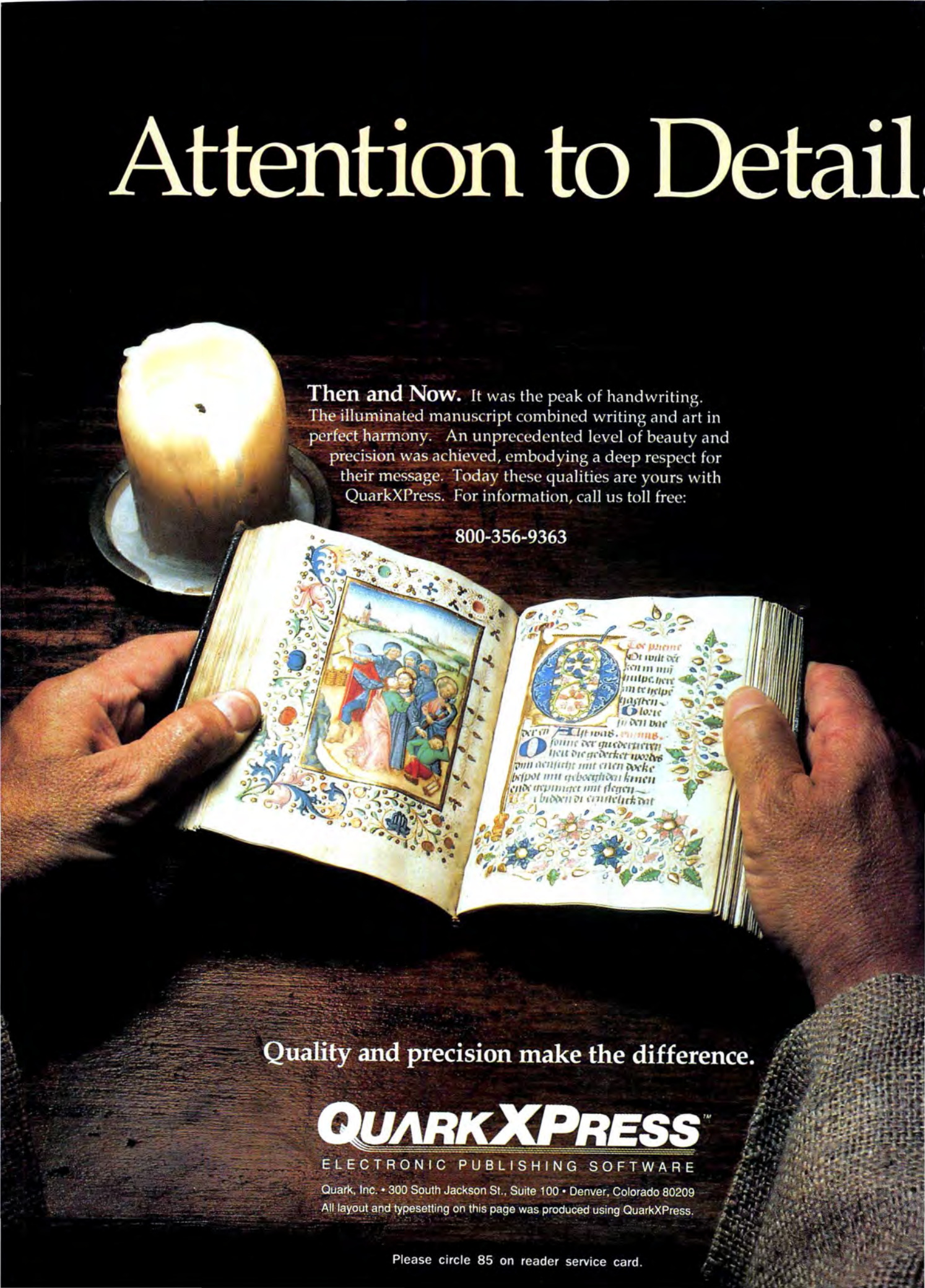
MEA CULPA, MEA CULPA

It gets worse. In my August column one of my Pinstripe Picks was *Da Mob*. In this case I jumped the gun so far that the name of the product changed before the column appeared. So if you have been looking for the product which lets you have virtually unlimited DAs, fonts and FKEYs, ask for *Suitcase* from Software Supply.



BRIDGET STARR TAYLOR

Attention to Detail.



Then and Now. It was the peak of handwriting. The illuminated manuscript combined writing and art in perfect harmony. An unprecedented level of beauty and precision was achieved, embodying a deep respect for their message. Today these qualities are yours with QuarkXPress. For information, call us toll free:

800-356-9363

Quality and precision make the difference.

QUARKXPRESS™

ELECTRONIC PUBLISHING SOFTWARE

Quark, Inc. • 300 South Jackson St., Suite 100 • Denver, Colorado 80209

All layout and typesetting on this page was produced using QuarkXPress.

Please circle 85 on reader service card.

MEA CULPA, MEA MAXIMA CULPA

As long as I've caught you in a forgiving mood, there's one last thing I should confess. After I turned in my August column which recommended *PowerStation* and *Da Mob* (now *Suitcase*)—but before it appeared in print—Steve Brecher, author of *PowerStation* and *Suitcase*, asked me if I'd write the manuals for the two products. I agreed, so if you bought either of these products based on my recommendations then saw my name in the manual, be assured that I was not trying to abuse my position or your trust. One of the reasons I agreed to write the manuals was that I already thought they were excellent products.

Writing manuals is harder than it would appear, and I have a major new project (which you may have heard about at the Boston Mac Expo) making demands on my time, so this should not happen again.

PINSTRIPE MAILROOM

I do get the mail you send in care of this magazine, but I can seldom find the time to reply. I am a much better electronic mail correspondent, so if you have any gripes, beefs or suggestions, you can reach me on CompuServe at 76703,3036 where I'm the sysop of the MAUG Macintosh Business Users Forum (GO MACBIZ), or on the Source at BBX523 (in PARTI I'm WIGGO), or on GEnie or Delphi at WIGGO, or on PARTI on NWI at ROBERT WIGGINS. Paper mail should continue to be sent to *MacUser*.

PINSTRIPE PICKS

Hardware products worth looking into if you use your Macintosh for business:

Radius Full Page Display: the Rolls-Royce of the big screens, designed by Burrill Smith, the original Macintosh hardware wizard, with ROM code by Andy Hertzfeld, the original Macintosh software wizard. Early production problems have been overcome, and the latest ROM version (2.8) is stable. An amazing piece of equipment. A must for desktop publishing.

Jasmine 80: the first truly inexpensive large capacity hard disk for the Macintosh. Its low price has made it very popular.

CMS 80: another low-cost, high-capacity disk which is enjoying popularity, particularly among Mac II owners.

Levco Prodigy: the father of the accelerated motherboards. Available for the Mac Plus as well as for the SE.

MAX YOUR MAC

SAME DAY SHIPMENT

WOULD YOU PAY $49 FOR A LIFETIME RIBBON SUPPLY?

Epson Ribbon Inker Kit
Call for Prices

Your Bede Tech Ribbon Inker Quickly Pays For Itself!

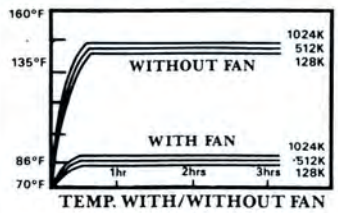
Motorized Ribbon Inker silently re-inks all ImageWriter I and II fabric ribbons again and again. Print quality surpasses new ribbons—and gets better with each re-inking! Specially lubricated black ink actually extends print head life. 4-oz. ink bottle lasts 50-100 re-inkings. Our customers love the quality, simplicity, and savings!

Bede Tech Bonus • FREE 4 oz. Bottle Black Ink, FREE Roller and Roller Cover

ImageWriter I & II Ribbon Inker Kit
BEDE TECH DIRECT $49 Reg. $67 Value

COOL YOUR MAC WITH FANNY MAC

Built without its own fan, your MAC is prone to overheating. The more powerful your Mac, the hotter it runs. High operating temperatures can cause component failure or even burn out your circuit board.
Intelligently designed by Steve Beck's Beck Tech, FANNY MAC is the Original Macintosh Fan!



TEMP. WITH/WITHOUT FAN

- Lowers operating temperature as much as 50°.
- Moves more air through your Mac—24 cu. ft. per min.
- Only Macintosh fan with dependable ball bearing motor. Actually runs quieter the longer it runs. Fanny Mac lasts twice as long as inferior sleeve-bearing fans which grow noisier with age.
- Built-in surge protector.
- Lighted switch that controls both fan and Macintosh.
- Fits flush into Mac's handle.
- Quickly snaps in and out with no effort, no tools.

BEDE TECH DIRECT $74.00 Reg. $99 Value

30-Day Satisfaction Money Back Guarantee • FREE Catalog with Order.

bede tech

Call Toll Free
800-772-4536
8327 Clinton Road, Cleveland, OH 44144
216/631-4214

Member, The Bede Companies, Est. 1976

Please circle 277 on reader service card.

Programs & Peripherals

Picks of the Month

FONTastic Plus by Altsys Corporation

FONTastic Plus is the premier bitmap font editor for the Mac. It gives you the power to *change any screen font. FONTastic Plus* can create special symbols in seconds and helps you to make your own letters. You can also edit several fonts at once, create true kerning pairs, print samples and use guidelines. Everything you need to make fonts is at your fingertips with *FONTastic Plus.*

FONTastic Plus ..... **45.**

MicroPhone 1.1 by Software Ventures

MicroPhone 1.1 is the best-selling telecom software for the Macintosh. It offers fast and reliable communications with other PCs, minis, mainframes and info services. *MicroPhone* allows you to automate log-on sequences, data transfers and electronic mail. With the unique Watch Me features, script creation is a snap so you don't need to learn a new language. *MicroPhone* now comes with an on-line text editor and includes *Glue* for desktop publishing. Get in touch with other computers by using *MicroPhone 1.1.*

MicroPhone 1.1 ..... **109.**

MindWrite 1.1 by MindWork Software

MindWrite is the best idea organizer for any professional who writes. It allows documents to evolve naturally from notes, through an outline into finished text. *MindWrite* moves easily between writing and outlining, automatically tracking revisions for you. A special search function allows you to abstract all references to a certain topic into a new document. In addition to all this, *MindWrite* automatically renumbers sections and lists, creates table of contents, counts characters, words, and paragraphs and displays as many windows as memory allows. If you have writing on your mind order *MindWrite* now!

MindWrite 1.1 ..... **179.**

Desk Accessory Programs

Affinity Microsystems Tempo	55.	**Imagine Software**	
Batteries Included		Smart Alarms & Appointment Diary	38.
Battery Pak *(9 Desk Accessories)*	32.	Smart Alarms & Appointment	
Borland		Diary Multi-User	99.
SideKick V2.0	59.	**Solutions, Inc.**	
Cortland		SmartScrap & The Clipper	
Top Desk *(7 New Desk Accessories)*	34.	*(New Scrapbook DA)*	41.

Utility Software

Berkeley System Design		**Personal Computer Peripherals Corp.**	
Stepping Out *(Macintosh*		HFS Backup V2.0	29.
Screen Extender)	59.	**Softstyle** Printworks	47.
Central Point Software		Laserstart Plus	89.
Copy II Mac *(Includes MacTools)*	20.	**SuperMac Software** SuperSpool	
FWB Software Hard Disk Util	56.	*(ImageWriter Print Spooler Utility)*	39.
Hard Disk Backup or Hard		Diskfit *(Backup & Restore Utility)*	49.
Disk Partition	38.	SuperLaserSpool	99.
Ideaform		Multi-User SuperLaserSpool	259.
Mac Labeler *(Version 2.2)*	29.	Sentinel	49.
DiskQuick *(Disk Librarian)*	29.	**THINK Technologies**	
Infosphere		LaserSpeed *(Single User)*	65.
MacServe *(Network Software)*	165.	LaserSpeed Office Pack	279.
LaserServe *(LaserWriter Print Spooler)*	65.	**Williams & Macias** myDiskLabeler	24.
ComServe *(Modem Sharing Software)*	195.	myDiskLabeler w/Color	33.
Olduvai Software DA-Switcher		myDiskLabeler w/LaserWriter Option	37.
(Switch Multiple Sets of DA's)	26.	**Working Software, Inc.**	
Icon-It! *(Assign Icons to Menu Items)*	39.	Findswell *(Document Finder)*	32.

Languages

Apple Computer MacPascal	99.	Microsoft Basic Compiler 1.0	119.
Borland Turbo Pascal	59.	Microsoft Fortran Compiler 2.2	169.
Consulair		**THINK Technologies** Lightspeed C	119.
Macintosh 68000 Development System	59.	Lightspeed Pascal	79.
Mainstay		**TML Systems** TML Pascal V2.0	68.
V.I.P. *(Visual Interactive Programming)*	85.	TML Source Code Library	58.
Microsoft		TML DataBase Toolkit	64.
Microsoft Basic Interpreter 3.0	64.	**Zedcor, Inc.** ZBasic 4.0	64.

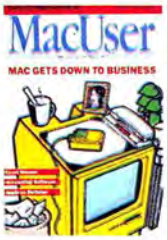
Communications Software

Apple Computer MacTerminal	99.	**Software Ventures**	
Compuserve		Microphone 1.1 *(Includes Glue) Special*	109.
Compuserve Starter Kit	24.	**Think Technologies, Inc.** InBox-Starter	
DataViz MacLink Plus with Cable	149.	Kit V2.0 *(3 Personal Connections)*	219.
Hayes Microcomputer Smartcom II	88.	InBox-Additional Personal Connections	79.

MacUser Back Issues!

Now you can finally round out your necessary Macintosh documentation with those missing issues of **MacUser.** Order soon, because once these back issues are gone, they're MacHistory, and quantities *are* limited.

For more "hands-on" Macintosh information, get your hands on the **MacUser** collection. At $6.00 each, they're probably the best investment you can make for your Mac.



DECEMBER '85
Accounting software · *Excel* Macros · Is it *Just Text?* · Novels of the Mind · Beginners guide to telecommunications · MIDI to the Macs · Basic Pt. 2 · *QuickSet, Sidekick* & *BatteryPak* reviewed

JANUARY '86
Best products of 1985 · *ThinkTank* the creative way · *Deja Vu* review · The Great Language Face-Off · MUG Line—users group · *Crunch* · Beyond the ImageWriter · Basic Pt. 3

FEBRUARY '86
Power User's Manual · The LaserWriter Revealed · Function Keys · Apple's HD20 & HFS · *MacDraft* vs. *MacDraw* · *Business Filevision* · *Rogue* · 3 flight simulators reviewed · Basic Pt. 4

MARCH '86
The Mac Plus · *Helix* · *Sargon III* vs. *Psion Chess* · *Omnis 3* · *MacProject* and *Micro Planner* review · *Multiplan* · C Pt. 1 · Clipboard, Note Pad and Scrapbook revelations

APRIL '86
Softstrip reader · *ReadySetGo* 2.0 · Astronomy software roundup · *The Home Accountant* · The Cheat Sheet · *The Ancient Art of War* · *Interlace* — a relational Bargain · C Pt. 2

MAY '86
Upgrading your Mac · Secrets of *Word* · *StatWorks* &*StatView* · *Easy 3D* · Tee off with *MacGolf* · *Borrowed Time* · Kids games with *Slide Show Magician* and *VideoWorks* · C Pt. 3

JUNE '86
Special Desktop Publishing Issue · Newsletters · *Fontographer* and LaserWriter fonts · *PageMaker* 1.2 · Directory · *MacSpin* · *Switcher* and RAM disks · *TML Pascal* · *Wizardry* · C Pt. 4

JULY '86
Tempo · *MicroPhone, Smartcom* and *Red Ryder* · *CLR Libraries* · Games that let you make games · *Quartet* and *Ensemble* · *Mac-a-Mug* · Pascal Pt. 1

AUGUST '86
Mac systems in the office · Your First Utilities · Radio Shack Model 100 and Mac · Software print spoolers · The colors of *Silicon Press* · On-line services · Pascal Pt. 2

SEPTEMBER '86
Professional Desktop Publishing Issue · Effective Charting · Power Word Processing · The Linotronic Connection · *MacPublisher II* · SCSI hard disk roundup · *MORE* · *Uninvited*

OCTOBER '86
Microsoft Works · As the *Double Helix* twists · Nine spell checkers reviewed · *Archon* · Word games galore · Exploring MAUG · *FullPainting* · *Finder* basics · Pascal Pt. 3

NOVEMBER '86
Radius monitor · *Works* · Power *PageMaker* techniques · Beginners telecommunications · *Cricket Graphing* · *Flight Simulator/Orbiter* · *StoryBoarder* · *Shanghai* surprise · Pascal Pt. 4

DECEMBER '86
MacUser looks at the IIGS · *InBox* — AppleTalk Electronic Mail · Inside *Insight* · *Studio Session* · PhoneNET · *OrbQuest* · Secrets of Pascal · *ZBasic* · *StatView 512K+* · Smart Games

JANUARY '87
Special Desktop Productivity Issue · *Jazz* vs. *Microsoft Works* · 2nd Annual Editor's Awards · Desktop Publisher of the Year · *MapMaker* · *GrayPaint* · *Dungeon of Doom*

FEBRUARY '87
Dynamac preview · Is *SuperPaint* super · *HardBall*, a great baseball game · Get more out of *MORE* · SCSI drive comparison · Design your own Mac screen · *LightSpeed Pascal*

MARCH '87
Word processors round-up · *Word 3.0* · *WriteNow* · *dBase Mac* preview · Financial and tax programs · Buffers go head to head · *Mac Pro Football review* · Prolog — AI for the Mac ·

APRIL '87
Two new Macs · Page processing with *Ragtime* · *Guide* review · Clean copy with *MacProof* · Create a world with *World Builder* · *Dark Castle* review · DAs galore · *Lightspeed C* review ·

MAY '87
Desktop Communications Issue · *AppleShare* · *TOPS* · *InterMail* vs. *inBox* · *Music Mouse* · *BASIC* 3.0 interpreter & Compiler · *Cricket Draw* · *EZ-Draft* · *MacMoney* ·

JUNE '87
Visual Programming · *Trapeze* · *Secrets of Excel* · How to pick the right programs for your publishing job · *V.I.P* · *Scrapbook* · *Seven Cities of Gold*

JULY '87
Special Supplement—Desktop Publishing: *Pagemaker 2.0* · *Ready, Set, Go! 3* · *Illustrator* · Typesetting on your Mac · The Apple Desktop BUS · *Chessmaster 2000* · *Parameter Manager* · Turbo Pascal

AUGUST '87
The Writing Process—*MindWrite* · *PowerPoint* for presentations · *UNIX* · A *BASIC* approach to writing a *MIDI* program · *LISP* the AI language of choice

HOW TO ORDER

Send $6.00 for each back issue ordered ($7.00 Foreign/Canada, U.S. currency only) to:

K. Armstrong
MacUser Magazine
Ziff-Davis Publishing Co.
One Park Avenue
4th Floor
New York, NY 10016

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

- ☐ December 85
- ☐ February 86
- ☐ March 86
- ☐ May 86
- ☐ June 86
- ☐ July 86
- ☐ August 86
- ☐ September 86
- ☐ October 86
- ☐ November 86
- ☐ December 86
- ☐ January 87
- ☐ February 87
- ☐ March 87
- ☐ April 87
- ☐ May 87
- ☐ June 87
- ☐ July 87
- ☐ August 87

I'd like to pay with:
☐ Check ☐ Money Order

& Phenomenal Prices . .

DataBase Management

Blythe Software Omnis 3 Plus 259.
Omnis 3 Plus Multi-User *(MacServe, Tops Network, Corvus, or Appleshare Network)* 499.
Borland Reflex 59.
Chang Laboratories
C.A.T. Contacts•Activities•Time 239.
Forethought FileMaker Plus 159.
Microsoft Microsoft File 1.05 110.
Nantucket Corporation McMax *(Run dBase Programs on the Mac)* 189.
Odesta Double Helix 275.
Multi-User Helix 429.
ProVUE Development OverVUE 2.1 149.
Software Discoveries MergeWrite 32.
RecordHolderPlus *Special* 45.

Business Software

Apple Computer MacProject 159.
Batteries Included
Isgur Portfolio System 125.
Time Link 32.
Bravo Technologies MacCalc 85.
Cricket Software
Cricket Graph 125.
Data Tailor
Trapeze *(Spreadsheet/Color Report Generator)* 169.
Deneba Software Comment *(Attach Electronic Notes to Files)* 64.
Forethought PowerPoint 209.
Layered
Notes For Excel, PageMaker, Microsoft Works or Word 3.0 *(each)* 42.
Legisoft/Nolo Press
WillWriter V2.0 31.
Lotus Jazz *(Version 1.A)* 179.
Micro Planning Software
Micro Planner Plus *Special* 289.
Microsoft
Microsoft Works 1.0 189.
Microsoft Multiplan 1.11 110.
Microsoft Chart 1.02 72.
Microsoft Excel 1.04 224.
Satori Software
Legal Billing 359.
Legal Billing II 519.
Project Billing 429.
Bulk Mailer 3.0 89.
Bulk Mailer Plus 3.0 219.

Word & Outline Processors

Ann Arbor Softworks
FullWrite Professional 169.
Apple Computer MacWrite 99.
Firebird Licensees Laser Author 105.
Living Videotext More 149.
Microsoft Microsoft Word 3.01 239.
MindWork Software
MindWrite 1.1 *Special* 179.
OWL International Guide 79.
Guide Envelope System 99.
Symmetry Acta V1.2 37.
T/Maker Company WriteNow 98.

Spelling & Grammar Checkers

Aegis Development
Doug Clapp's Word Tools 42.
A.L.P. Systems MacProof V2.0 *(Requires MacPlus)* 99.
Batteries Included
Thunder! *(Interactive Spelling Checker)* 32.
Deneba Software Spelling Coach 3.0 *(Webster's/Medical/Legal/Hyphenation)* 64.
Spelling Coach 3.0 Professional *(Adds Definitions & Thesaurus)* 129.
Coach Merriam Webster's Thesaurus 2.0 39.
Lundeen & Associates WorksPlus Spell 38.
Microlytics, Inc.
Word Finder *(Synonym Finder)* 39.
Working Software Inc.
Spellswell Spelling Checker & Proofreader V1.3 44.
Spellswell Medical Dictionary *(35,000 Medical Terms)* 57.
Lookup *(Makes Spelling Suggestions)* 32.

Desktop Publishing

Aldus Corporation
PageMaker 399.
Boston Publishing Systems
The MacPublisher III 149.
Letraset Ready, Set, Go! 3.0 249.
Ready, Set, Go! 4.0 289.
Postcraft International, Inc.
Laser FX *(Typographical Special Effects for Desktop Publishing)* 119.
Solutions, Inc.
Glue *(Adds "Print to Disk" Capability)* 41.
Super Glue *(Graphics Integration Package)* 59.

Accounting Packages

BPI
BPI Entry Series-General Accounting 135.
Chang Labs
New Enhanced Version III Modules!
Rags to Riches GL, AR, or AP 125.
Rags to Riches Three Pack- *(GL/AR/AP)* *Special* 279.
Inventory Control 243.
Professional Billing 243.
Professional Three Pack- GL/Professional Billing/Payables 349.
Digital, Etc.
Turbo Maccountant V2.0 259.
Migent
In House Accountant 99.
Monogram
Dollars & Sense 81.
Peachtree
Back To Basics Three Pack *(GL/AR/AP)* 129.
Survivor Software
MacMoney *(Financial Planner)* 42.

Statistics Packages

BrainPower
StatView 512 Plus 179.
Cricket Software Statworks 77.
Systat
Systat 3.1 *(Specify Mac 512K, MacPlus, or Mac II)* 459.

Please circle 69 on reader service card.

Graphics Software

Altsys Corp. FONTastic 27.
FONTastic *Plus* *Special* 45.
Fontographer 2.2 245.
Ann Arbor Softworks Full Paint 53.
Apple Computer MacPaint 99.
Broderbund Print Shop 39.
Toy Shop 32.
Casadyware
Fluent Fonts 2.0 *(Two-Disk Set)* 29.
Fluent Laser Fonts Vol. 1-15 *(ea)* 48.
Deneba Software
Canvas 1.0 *(Graphics Capabilities of MacPaint & MacDraw)* 129.
Canvas DA 1.0 *(Desk Accessory Version)* 64.
Dubl-Click Software
World Class Fonts! Vol. 1 or Vol. 2 28.
World Class Fonts! *(Both Volumes)* 49.
WetPaint Vol. 1 or Vol. 2 28.
WetPaint *(Both Volumes)* 49.
Enzan-Hoshigumi USA
MacCalligraphy 2.0 115.
Japanese Clip Art Scroll 1 *"Heaven"* or Scroll 2 *"Earth"* 59.
LaserWare, Inc. LaserPaint 319.
LaserWorks 199.
Miles Computing Mac The Knife Volume III, IV, or V 27.
Mindscape ComicWorks 48.
GraphicWorks 1.1 64.
Olduvai Software
Post-ART *(Three Disk Set)* 34.
Silicon Beach Software
SuperPaint 54.
Silicon Press 41.
Springboard Certificate Maker 35.
Certificate Maker Library #1 21.
Symmetry PictureBase V1.2 44.
T/Maker
Click Art Letters I, Letters II, Personal Graphics, Publications, Effects, Business Image, or Holidays *(each)* 28.
Click Art Laser Fonts: Plymouth, Bombay, or Seville *(each)* 46.

CAD Products

Apple Computer MacDraw 159.
Challenger Software
Mac 3D *(Enhanced Version 2.0)* 119.
Cricket Software
Cricket Draw 175.
Enabling Technologies
Easy 3D 69.
Professional 3D 199.
Innovative Data Design
MacDraft *(Updated Version 1.2)* 159.

Educational/Creative Software

Addison Wesley Puppy Love 14.
Bogas Productions Studio Session 59.
Broderbund Sensei Geometry 64.
Calculus & Physics 64.
Davidson & Associates
Speed Reader II 39.
Math Blaster or Word Attack! 28.
Electronic Arts Deluxe Music Construction Set V2.0 *Special* 62.
1st Byte/Electronic Arts
Kid Talk, Speller Bee, First Shapes, or Math Talk 31.
Mathtalk Fractions, First Letters & Words, or Smoothtalker 31.
Great Wave Software
KidsTime or TimeMasters 28.
Concertware+ 4.0 45.
Concertware+ MIDI 4.0 95.
Hayden MusicWorks 29.
Score Improvement System for the SAT 59.
Micro: Maps
MacAtlas Paint Version *(MacPaint Format)* 32.
MacAtlas Professional *(PICT/MacDraw Version)* 129.
Mindscape Perfect Score SAT w/ The Perfect College 46.
Rubicon Publishing
Dinner at Eight-Silver Palate Bundle 52.
Simon & Schuster
Typing Tutor IV 38.
Paper Airplane Construction Set 24.
Spinnaker Typing Made Easy 32.
Springboard
Early Games for Young Children 28.
Easy as ABC 28.

Game Software

Accolade Hard Ball 24.
Activision
Shanghai or Hacker II 24.
Hacker 16.
Portal 32.
Tass Times In Tonetown 21.
Artworx Bridge 5.0 20.
Avalon Hill
Mac Pro Football 30.
Broderbund
Ancient Art of War 27.
Bullseye Software
Fokker TriPlane Flight Simulator 34.
Ferrari Grand Prix 34.
Electronic Arts Starfleet I 37.
ChessMaster 2000 30.
Archon, One-On-One, Patton vs Rommel, Pinball Construction Set, Seven Cities of Gold, Software Golden Oldies or SkyFox *(each)* 15.
EPYX Winter Games or Sub Battle Simulator 24.
Firebird Pawn 27.
Hayden Software Sargon III 29.
Infinity Software, LTD.
Grand Slam Tennis II 34.
World Cup Soccer 27.
Go 23.
Infocom
Ballyhoo, Beyond Zork, Bureaucracy, Hollywood Hyjinx, Leather Goddesses of Phobos, Moon Mist, Nord & Bert, Stationfall, The Lurking Horror, Trinity, or Zork I *(each)* 25.
Hitchhiker's Guide to The Galaxy 19.
Zork Trilogy 45.
Microsoft
Flight Simulator 1.0 32.
Miles Computing Inc.
The Fool's Errand 27.
Downhill Racer or Harrier Strike Mission II 27.
Mindscape
Balance of Power or Crossword Magic 32.
Deja Vu: A Nightmare Comes True 32.
King Of Chicago or Shadowgate 32.
The Uninvited 32.
Practical Computer Applications
MacGolf 2.0 or MacRacquetball 36.
MacCourses 34.
Psion
Psion Chess *(3D & Multi-Lingual)* 31.
Sierra On-Line
Space Quest 32.
Black Cauldron 25.
King's Quest I, II, or III *(each)* 32.
Silicon Beach Software
Enchanted Scepters 21.
Dark Castle 28.
World Builder 41.
Simon & Schuster
Star Trek *(The Kobayashi Adventure)* 24.
Sir-Tech Mac Wizardry 35.
Sphere, Inc.
GATO, Orbiter, or Falcon 26.
XOR Software
NFL Challenge 69.

. Positively A Plus!

Disk Drives/Hard Disks/Upgrades

AST Research
AST fAST-20 — 859.
20 MB External Hard Disk for Macintosh Plus, SE and Mac II.
AST-2000 — 1399.
20 MB External Hard Disk with 20-MB Cartridge-Tape Backup for the Macintosh Plus.
AST-4000 — 3699.
74 MB External Hard Disk with 60-MB Cartridge-Tape Backup for the Macintosh Plus.
Central Point
Central Point 800K External Drive — 185.
Dove Computer Corporation
MacSnap Model 524 *(512K to 1MB Upgrade)* — 139.
MacSnap Model 524S *(512K to 1MB Upgrade w/SCSI Port)* — 239.
MacSnap Model 548 *(512K to 2MB Upgrade)* — 359.
MacSnap Model 548S *(512K to 2MB Upgrade w/SCSI Port)* — 459.
MacSnap Plus 2 *(MacPlus to 2MB Upgrade)* — 249.
MacSnap Toolkit *(Wrench, Case Cracker & Grounding Set)* — 14.
Ehman Engineering
Ehman 800K External Disk Drive — 189.
IOMEGA
Dual Cartridge Drives
Bernoulli Box *(Dual 10MB w/SCSI)* — 1419.
Bernoulli Box *(Dual 20MB w/SCSI)* — 1849.
MacMemory, Inc.
All MacMemory products carry a full two year warranty!
MaxPlus *(2MB Upgrade w/MaxRam/MaxPrint/MaxChill)* — 329.
MaxPlus 2x4 *(2.5MB Upgrade with 1MB Chips-Hyperdrive Compatible)* — 519.
MaxPack *(MaxPlus and MaxSave Bundle)* — 379
MaxPort *("SCSI" Port for your Mac 512K)* — 139
Mirror Technologies
Magnum 800K External Drive *(Available in Beige or Platinum)* — 209.
Personal Computer Peripherals
Available in Beige or Platinum Color
MacBottom HD-21 *(20+Mb SCSI Hard Disk)* — 859.
MacBottom HD-45 *(45Mb SCSI Hard Disk)* — 1285.
MacBottom 20 *(20+Mb Serial Hard Disk for Mac 512k & MacPlus)* — 859.
Rodime Systems
Rodime 20 Plus Hard Disk *(MacPlus SCSI)* — 759.
Tecmar
QT-Mac40 *(Standalone 40BM Tape Backup w/SCSI)* — 1139.
Western Automation Labs
Dasch External RAMdisk *(2048KB)* — 429.

Modems

Hayes Microcomputing
Smartmodem 1200 — 299.
Smartmodem 1200 Mac w/Smartcom II & Cable — 359.
Smartmodem 2400 — 449.
Transet 1000-128K — 269.
Transet 1000-512K — 359.
Transet 1000 Mac Accessory Kit — 29.
InterBridge *(Connect Appletalk Networks)* — 599.
Migent
Migent Pocket Modem *(ext. 300/1200 Baud)* — 169.
Prometheus
Promodem 1200 *(Hayes Compatible)* — 239.
Promodem 2400 *(Hayes Compatible)* — 309.
Mac Pack w/Procom M and Cable *(Specify Mac or MacPlus)* — 49.
U.S. Robotics
Courier 1200 (Hayes Compatible) — 199.
Courier 2400 *(Hayes Compatible)* — 349.
Courier 2400E *(Hayes Compatible)* — 409.
Courier HST 9600 *(Hayes Compatible)* — 689.

Digitizers

AST TurboScan *(Optically Scans & Digitizes at 300 Dots-Per-Inch)* — 1399.
Impulse Impulse *(MacNifty)* Audio Digitizer V2.0 w/SoundCap — 149.
Koala Technologies Corp.
MacVision *(Digitizer)* — 175.
New Image Technology
Magic Digitizer *(Mac 128/512k or MacPlus Version)* — 249.
MacScan *(High Speed Image Scanner at 300 [DPI])* — 1399.
Summagraphics
MacTablet 6x9 size — 289.
MacTablet 12x12 size — 379.
ThunderWare
ThunderScan V4.0 with Power Port *(Mac 512K, 512K Enhanced, MacPlus, and Macintosh SE)* — 199.

Blank Media

Single Sided 3½" Diskettes
BASF 3½" SS/DD Disks *(box of 5)* — 8.
Bulk *(Sony)* 3½" SS/DD Disks *(10)* — 12.
Sony 3½" SS/DD Disks *(box of 10)* — 14.
Centech 3½" SS/DD Color Disks *(box of 10)* — 16.
Fuji 3½" SS/DD Disks *(box of 10)* — 14.
Maxell 3½" SS/DD Disks *(box of 10)* — 13.
Verbatim 3½" SS/DD Disks *(box of 10)* — 13.
3M 3½" SS/DD Disks *(box of 10)* — 14.
C.Itoh Color Disks SS/DD *(box of 10)* — 22.

Double Sided 3½" Diskettes
BASF 3½" DS/DD Disks *(box of 5)* — 9.
Bulk *(Sony)* 3½" DS/DD *(10)* — 16.
Centech 3½" DS/DD Color Disks *(box of 10)* — 19.
Sony 3½" DS/DD Disks *(box of 10)* — 19.
Fuji 3½" DS/DD Disks *(box of 10)* — 20.
Maxell 3½" DS/DD Disks *(box of 10)* — 20.
Verbatim 3½" DS/DD Disks *(box of 10)* — 20.
3M 3½" DS/DD Disks *(box of 10)* — 21.
C.Itoh Color Disks DS/DD *(box of 10)* — 25.

Accessories

A.M. Products
3½" Head & Computer Cleaning Kit — 18.
Bech-Tech
Fanny Mac — 69.
Cambridge Automation
Numeric Turbo — 99.
Curtis Manufacturing
Diamond-Surge Suppressor-SP-1 — 29.
Emerald-Surge Suppressor-SP-2 — 36.
Ruby-Surge Suppressor-SPF-2 — 55.
Sapphire-Surge Suppressor-SPF-1 — 47.
Ergotron
MacTilt or MacTilt SE *(Platinum Color)* — 74.
Mouse Cleaner 360° — 15.
MacBuffer *512K* — 329.
MacBuffer *1024K* — 429.
I/O Design
Mac Luggage Available in Navy or Platinum Gray
Macinware Plus Carrying Case — 69.
Macinware SE Carrying Case — 79.
Imageware II Carrying Case — 49.
Kalmar Designs
Teakwood Roll-Top Disk Cases:
Micro Cabinet *(holds 45 disks)* — 14.
Double Micro Cabinet *(holds 60 disks)* — 21.
Triple Micro Cabinet *(holds 135 disks)* — 29.
Kensington
External Disk Drive Cover — 8.
Mouse Pocket — 8.
Mouseway *(Mousepad)* — 8.
ImageWriter or ImageWriter II Cover — 9.
Macintosh (Plus) Dust Cover — 9.
Mouse Cleaning Kit w/Pocket — 17.
Disk Case *(holds 36 Mac disks)* — 19.
Disk Drive Cleaning Kit — 20.
Tilt/Swivel — 22.
Universal Copy Stand — 24.
Polarizing Filter — 34.
Surge Protector — 34.
Printer Muffler 80 — 39.
Printer Muffler 132 — 52.
Starter Pack *(includes Tilt/Swivel)* — 59.
Control Center — 64.
System Saver Mac *(Beige or Platinum)* — 64.
A/B Box *(MacPlus Only)* — 64.
Turbo Mouse — *Special* 79.
Moustrak
MousePad 7"x9" Size — 8.
MousePad 9"x11" Size — 9.
Ribbons Unlimited
Available in Black, Blue, Brown, Green, Orange, Purple, Red, Yellow, Silver & Gold
ImageWriter Ribbon-Black — 4.50
ImageWriter Ribbon-Color — 5.
ImageWriter Rainbow Pack *(6 Colors)* — 25.
ImageWriter II-Four Color Ribbon — 12.
SoftStyle
MacEnhancer — 169.
The Madison Line
Professional Series Carry Cases In Black Ballistic Nylon
Mac(Plus) Carry Case — 79.
ImageWriter I (II) Carry Case — 75.

Please circle 69 on reader service card.

PROGRAMS PLUS

75 Research Drive
Stratford, Connecticut 06497
800/**832-3201**

Orders Only 800/832-3201

In Connecticut call 378-3662 or 378-8293, Customer Service (203) 378-3662
Business Hours— Monday thru Friday 9 A.M. to 9 P.M.
Saturdays 10 A.M. to 6 P.M. *(Eastern Time)*

Our Policies

- We accept MASTERCARD and VISA with no added surcharge.
- Your credit card is not charged until we ship.
- If we must ship a partial order the shipment that completes the order is sent freight free.
- If you are ordering by mail, we accept private and company checks. For fast delivery, send cashier's check, certified check, or money order. With MASTERCARD and VISA orders include card number and expiration date. Connecticut residents add 7.5% sales tax.
- UPS Next Day Air & 2nd Day Air available.
- Sorry, we cannot accept COD orders.

Shipping

- **Software Only:** Continental US: $3.00 min. charge for Shipping & Insurance. APO/FPO orders shipped 1st class mail, add 3% *($5.00 min)* **Hawaii:** Add 10% *($15.00 min)* **Alaska:** Add 6% *($10.00 min)* **Canada:** Add 12% *($15.00 min)* **Foreign Orders:** Add 20% *($35.00 min)*
- **Hardware Items:** Please call for shipping charges.
- All goods are new and are guaranteed by the manufacturer, but we cannot guarantee machine compatibility. Due to software copyright laws, all sales are final. Defective software will be replaced immediately by the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at *(203) 378-3662* to obtain a Return Authorization number before returning goods for replacement. Products purchased in error subject to a 20% restocking fee. All items subject to availability. Prices subject to change without notice.

© Copyright 1987 Programs Plus, Inc.

to Polish Up Your Mac...

with Special Pricing!

Rags to Riches 3 Pak GL/AR/AP Version III by Chang Laboratories

Rags to Riches Version III provides users with more choices in their accounting selection, setup, operation and reporting! Each module has more options to let you customize the operation to the way YOU do business. It gives you more flexibility to format reports, invoices and statements to suit your personality. This is the fastest accounting package available for the Macintosh. Success in accounting can be yours with *Rags to Riches Version III.*

Rags to Riches 3 Pack *(GL/AR/AP)* Version III... 279.

RecordHolderPlus by Software Discoveries, Inc.

The original RecordHolder data manager drew rave reviews: "powerful, easy-to-use" and a program that "outclasses most programs costing four times as much." Now ***RecordHolderPlus*** adds *color* and *graphics* capabilities. You can store pictures in your database and print text or graphics in color on the ImageWriter II. Mailing labels can be sorted by Alpha or ZIP and printed as multiple labels across or multiple identical labels. Order *RecordHolderPlus,* the "easiest-to-use" data manager that lets you show your true *colors*!

RecordHolderPlus ..... 45.

Turbo Mouse by Kensington Microware

Turbo Mouse does everything a Mouse can do and more! It is quicker, quieter and easier to use than a standard mouse by turning mouse technology upside down. With the mouse ball on top rather than on the bottom, you move only the ball and not the whole mouse. *Turbo Mouse* is compatible with the Macintosh and the Macintosh Plus. Avoid all the old desktop "mousetraps" by using *Turbo Mouse.*

Turbo Mouse ..... 79.

Micro Planner Plus by Micro Planning International

Micro Planner Plus is the most powerful yet easy-to-use project and resource management software available on any Micro. You can save time and money by minimizing delays. Choose to have customized Pert, Gantt and other management reports drawn for you with the option for embellishment in MacDraw. You can transfer information to and from other Mac applications. Bring your projects in on time and on budget with *Micro Planner Plus*!

Micro Planner Plus..... 289.

Deluxe Music Construction Set 2.0 by Electronic Arts

Deluxe Music Construction Set 2.0 is the ultimate Macintosh music tool for composing, performing and publishing. For composing, *DMCS* has complete input, editing and notation. For performing, there is an enormous variety of playback options utilizing the 27 instruments. Desktop music publishing is now a reality — *DMCS* supports Adobe Systems' *Sonata* font for professional quality sheet music. Get in tune with your Mac with *Deluxe Music Construction Set 2.0*!

Deluxe Music Construction Set 2.0 ..... 62.

Positively A Plus!

PROGRAMS PLUS

800/832-3201

FUN x 2 x 3

2-Player Versions of 3 Great Games

World Cup Soccer™

Another Macintosh Original!

- dribble, pass, shoot & tackle—all the standard soccer moves are possible, including head shots
- use real soccer strategies
- over 400 frames of full animation, 3D graphics & digitized sound
- play against different teams from countries around the world!

$49.95

GrandSlam II™

New, Enhanced Version!

- 2-player capability
- improved mouse control for smoother strokes & serves
- all new realistic players
- over 400 frames of animation
- more digitized sounds & graphics
- special upgrade policy for current *GrandSlam* owners

$59.95

GO™

The Ultimate Game of Strategy!

Invented in China some 4000 years ago, the rules are extremely simple, yet the strategic choices almost infinite...

- 2-player via modem
- replay famous, annotated games
- 3D graphics & digitized sounds
- play at different levels against the computer, or your friends

$39.95

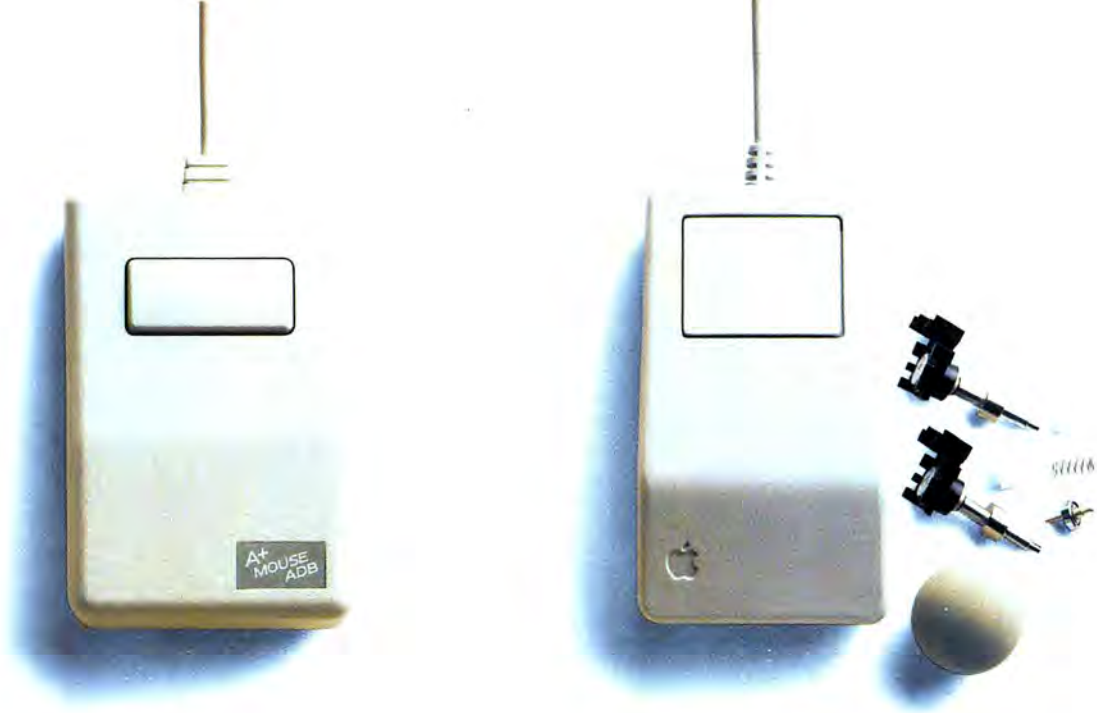
Please circle 13 on reader service card.

INFINITY

Macintosh is a trademark registered to Apple Computer, Inc.

1144 65th Street, Studio C • Emeryville, CA 94608 • 415-420-1551

© 1987 Infinity Software, Ltd.



Why you should buy a mouse with no moving parts.

One simple reason. No moving parts. And that means no problems.

Introducing the A+ Mouse from Mouse Systems. The A+ Mouse is an all optical mouse with no moving parts. It doesn't depend on friction, so there aren't any parts that can slip, get dirty or wear out. It doesn't have a rolling ball, a commutator, little teeny bearings and shafts, or plastic housings housing who-knows-what.

Instead, our mouse uses a mirror-like pad that reflects a tiny beam of light to track your slightest hand movement. No other mouse moves as fast or is as reliable.

Especially when you're moving around in spreadsheets and graphics software or editing text and manipulating data. That's because our mouse gives you up to 200 counts per inch and digital accuracy for exceptional cursor control.

Plus solid state electronics to ensure precision.

No matter what Apple system you have, we have an A+ Mouse that's right for you.

The A+ Mouse is compatible with the Macintosh 512K, Macintosh Plus, Apple IIc and Apple IIe (which requires the Apple mouse card).

The A+ Mouse ADB is ideal for the Macintosh SE, Macintosh II, and Apple IIGS.

The A+ Mouse. The mouse you'll never have to clean, repair or replace. It's so reliable, it's the only mouse with a Lifetime Warranty.*

See your local dealer for a demonstration today.

A+ MOUSE
MOUSE SYSTEMS

*Warranty limited to North America. Contact MSC Technologies, Inc. for details. Apple is a trademark of Apple Computer, Inc. Mouse Systems is a trademark of MSC Technologies Inc.
©1987 MSC Technologies Inc., 2600 San Tomas Expressway, Santa Clara, California 95051 (408) 988-0211.

by Doug Clapp

Program–ming Days (and Nights)

Off the plane at Detroit's Metro airport. The middle of nowhere. Take a cab? Hop a bus? I have no idea where the Holiday Inn is: 2 blocks, 2 miles, 20 miles?

But it's okay. Doug Houseman is there. Houseman organized this. This is MacHack '87. My coming out conference. After almost 2 years of reclusion, 2 years of turning down speaking engagements, and Expos and whatnot, I wanted to go somewhere at last. To get back into it again; to see what's new in the Macintosh community. The Land.

In the car, Houseman says, "If you'd been here last night, we would've gone out for crab legs."

I tell him that I love crab legs and he says "I know."

Huh? How could a total stranger know I like crab legs? Crab legs?

So I ask, and he says "Oh I know a lot about you. I downloaded over 50K of stuff about you."

Houseman is a NetFlyer, among other talents. The Source, CompuServe, GEnie, AppleLink, UseNet, Delphi, Arpanet, Bix, hundreds of private bulletin boards, university conferencing systems and more. The Web. Crab legs.

And then we're into Mac II boards under development, and chips and bugs—obvious and arcane—and the conversation spirals down to Low Level. And I'm thinking "This is it; the next few days are going to be Low Level."

They were. With passion and passionately. Developers, software company reps and Jordan Mattson from Apple; each player with a mission.

The word heard everywhere was "break." It's a variation on crash. Imagine this. You've got a small software company. People buy your products. They boot your software, it works, you get paid. Life is good.

Then Apple comes out with new *System*, *Finder*, ROMs and you break. Your stuff doesn't run on New Machine One. It breaks.

The man in the audience said it best. "Look," he said, "I could lose my company, my car, my marriage, I could get sued, I could lose everything I have if my stuff breaks."

So there's the mission. Not to break. To find out what Apple's doing; to learn what you need to know to make a living, and keep on making it.

For some of the developers, that's the mission. Jordan Mattson has a similar mission. To encourage developers to "follow the rules" of Macintosh programming. Follow the rules carefully enough, and you probably won't break when Apple's next secret is out—and the next one and the next one.

Ah, but rules. Rules are high school. Rules are for programmers not good enough to live out there, on the edge. Rules aren't for "Macho Programmers." Not for guys who look at ROM routines and say "DrawChar? I can write DrawChar better than Atkinson did. I can do it smaller. I can do it faster."

Besides, Real Programmers want to Get Down. Down there next to the hardware. *Right* next to the hardware. Wrap their fingers around it and fly. Romance.

Romance, though, is fleeting. Stick that disk in a Mac II and you'll see what I mean. Wham. And the Computer Press, knowing nothing whatsoever about programming, leap off their chairs to write "Bugs Found in Apple's new *System/Finder.*"

It's a wonder Apple isn't a bit, well, testy about stories like that. But at this conference, at least, Apple, in the guise of Jordan Mattson, is the Good Mother, patiently cajoling even the most macho nerds to leave DrawChar to Apple.

Not that anybody wants to cast the first stone. There's sin enough for all. Did the SE ship with 56 known bugs in the ROM, or was it 58? Don't call UnLoadSeg unless you're careful; it's buggy. The Dialog Manager freaks out if you have more than ... was it 24 items in a dialog? And copy problems with the *Finder* are well known. Don't copy over 100 files in one fell swoop unless things have been dull lately.

Bugs. Frustration and agony to you and me. Frustration and agony to Apple and Apple developers.

Needless to say, the Debugging session played to a full house. For Macintosh, the right tools are *TMON* and *MacNosy*. *TMON* is a polished, professional tool for debugging code. *MacNosy* (and The *Debugger*, *Nosy*'s companion piece) is quirky, idiosyncratic and absolutely amazing. If you have even the slightest desire to know what's really happening down there, buy *MacNosy*. These days, it even has a manual: an excellent, witty manual. The millennium must be just around the corner.

By day three, I was beginning to feel trapped behind the looking glass. The computer room hummed all night long: rows of Pluses, SEs and a Mac II sporting a 19-inch color display as big as a wall. Feel the urge to tweak that routine at 3 AM? No problem. Need a few public domain disks? The library has, oh, 300 and some disks; conference attendees take home 10 double-sided disks stuffed with source code, utilities, you name it.

And best of all: You can talk about programming all night long!

Too good to be true, and maybe it was. Next year's conference won't be called MacHack. Those In Charge thought the name too...you know. Too "Hackery." Insidious connotations. Not Professional enough. So next time it's The Apple Programmer's and Developer's Conference? No, not that. But something like that; some forgettable name that displeases no one.

MacHack will live, it's hoped, buried in a logo. And maybe the name won't put off this year's crowd from returning. I'd like that.

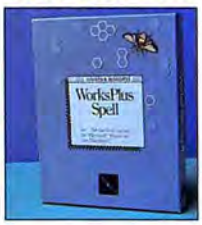
I wanna go back. Sit through more seminars, hear about all the new bugs, learn the new charms to ward them off, swap stories, trade anecdotes and talk programming *all night long.*

GARY HOVLAND

QUICK CLICKS

Quick Clicks are short reviews of released products, not beta releases, pre-release products or vaporware. If it appears here, it is available commercially. Products reviewed here will often be the subject of a longer review in a future issue.

WORKSPLUS SPELL ★★★★½

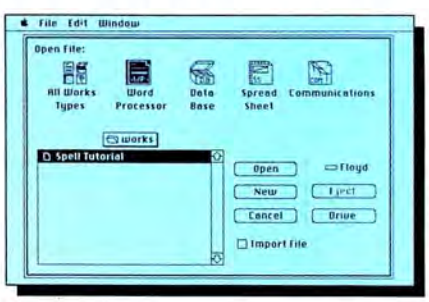


List Price: $59.95. Published by Lundeen & Associates, PO Box 30038, Oakland, CA 94604. (415) 893-7587. Requires 512K and *Microsoft Works*. Not copy protected.

Spell checkers are, as we can all attest, handy little items. Unfortunately, many suffer various idiosyncratic quirks and limited dictionary space, and fall short of completely taking over tedious proofreading chores. Human intervention is still required to make decisions. *WorksPlus Spell* comes as close to replacing proofreaders as any spelling checker I've seen. It has only one major drawback: it only works with *Microsoft Works*.

WorksPlus Spell has all the features of a good spelling checker, plus some welcome bells and whistles thrown in for good measure. It can be used interactively (as you write) or to check a manuscript (or any part of it) after it's completed. Used interactively, it beeps each time you mistype a word. Choose SEARCH/SHOW ERROR and the misspelled word is highlighted and alternatives are suggested. When you check a finished selection, each misspelled word is highlighted in turn, with a list of alternatives. Not so different so far.

One thing that is different is that the list of alternative words deals with not only common typing errors such as transposed letters, but also with phonetic misspellings. The publisher claims that 99 percent of the time the correct substitute will be on the alternatives list. So far I've no reason to doubt them.



WorksPlus Spell comes with a 73,000-word dictionary that you can add to (and delete from) as necessary. In addition, any document you create within the program has its own dictionary, which is unique to that document and is saved with it. You can put words, company names, whatever you like in this dictionary and they will be ignored during the spelling check. These two features are unique to *WorksPlus Spell*.

In addition to checking your spelling, *WorksPlus Spell* also checks for spacing. It accepts either one or two spaces between sentences, and your choice can be changed between documents. This is handy if, for example, you're working on a manuscript for a magazine, which requires a single space between sentences, and your Master's thesis, which requires two spaces.

WorksPlus Spell also has a glossary and a hyphenator—two features you don't often see in a spelling checker. The glossary allows you to enter abbreviations of frequently used phrases which the program automatically enters in full. It can also be used to time and/or date stamp your work. The hyphenation program—like the spelling checker—can be used automatically or after completing a document. Any changes you make in the document afterwards will automatically be reflected in the hyphenation. You also have the option of approving each hyphenation separately. And like the word dictionary, the hyphenation dictionary can be edited and added to.

One word about speed: *WorksPlus Spell* is *fast*. And saving time is what these programs are about, right?

In order to take advantage of all this, you'll need *Microsoft Works* and *WorksPlus Spell*. And while the manual includes instructions for using any kind of disk from 400K up, I strongly recommend using a hard disk. The program itself takes up 56K; the dictionary, 140K; and hyphenation, 146K. If you work with limited memory, you may find that you can check the spelling and hyphenation only for short documents. A hard disk will ensure there's room for your masterpiece, too.

WorksPlus Spell is as complete a spelling checker as you can find. It not only works quickly, it includes features like the glossary that make it possible for you to work quickly, too. If you already use *Microsoft Works*, you're going to want this immediately. If you use some other program, it's *almost* worth switching word processors for.—*LK*

ACCOUNTANT, INC. ★★★

List Price: $299. Published by Softsync, 162 Madison Ave., New York, NY 10016. (212) 685-2080. Requires 512+. Version 2.0 reviewed. Not copy protected.

It's encouraging to see a piece of software turn from an unpolished clunker into a more streamlined productivity tool. Such is the case with *Accountant, Inc.* Version 2.0 corrects more than 20 shortcomings of the original release.

Accountant. Inc. modules for accounts receivable, general ledger, accounts payable and inventory are all integrated under one icon on one disk. Opening this icon instantly accesses all of the modules. This is a great advantage over programs that keep four sets of data files that have to be accessed individually.

Setting up the books of a new company is straightforward and relatively easy. Most of the format options can be changed later, and you can create additional journals such as a separate one for credit card sales. Up to seven levels of password protection are offered.

Transactions can be entered easily, but duplicating information between customer, vendor and inventory lists could have been handled better. Clicking on the desired entry does not cause the appropriate numbers to be entered on another form. You must note the account or item number, click back to the form and enter the number manually. And you can't review or delete unposted

PRODUCT PHOTOS BY GARY BUSS

Borland's new SideKick®, Release 2.0, gives you MacPlan™ and a whole new Outlook™

Release 2.0 includes Outlook: The Outliner, the "thinking" desk accessory with more power than a standalone outliner, and MacPlan: The Spreadsheet, that does formulas, straight numbers, and also integrates spreadsheets and graphs.

Outlook and MacPlan work in perfect sync with each other and *while you run other programs!*

A quick look at Outlook

It's a "thinking" tool that lets you organize, re-organize, and gather your thoughts while you write.

It helps you structure what you want to say, add, delete, change the order, change your mind, whatever.

Outlook lets you incorporate both text and graphics into your outlines and allows you to work on several different outlines at the same time.

A fast scan of MacPlan

MacPlan is a highly visual spreadsheet that pictures your numbers without numbing you with numbers.

You can do graphs like bar charts, stacked bar charts, pie charts and line graphs.

MacPlan includes 12 *free example* templates and lets you paste graphics and data right into your Outlook documents for professional results.

> "A treasure chest of useful DAs. Outlook alone, the outliner desk accessory, is worth the price of the package . . . MacPlan, the spreadsheet DA, is terrific, and it does charts."
>
> *Doug Clapp, MacUser*

With SideKick's 11 desk accessories you can also:

- Log on to services like Dow Jones, MCI Mail, CompuServe, et al.
- Jot notes while you're on the phone
- Balance your checkbook
- Re-calculate the balance, hoping for bank mistakes in your favor
- Be reminded of important dates and meetings
- Edit your text files
- Write the Great American Novel with Outlook
- Do pie charts of your imminent wealth with MacPlan

Only $99.95

10 different ways SideKick helps you make it through the day. Or night.

- ☑ Outlook: The Outliner **NEW!**
- ☑ MacPlan: The Spreadsheet **NEW!**
- ☑ Mini word processor
- ☑ Calendar
- ☑ Auto-dialing and phone logging
- ☑ Analog clock
- ☑ Alarm system
- ☑ Calculator
- ☑ Report generator
- ☑ Telecommunications including XModem file transfer protocol

Upgrade Now! If you are one of the thousands of SideKick users, just send us your original master disk back with a check for $34.95, and we'll rush you a brand new SideKick, Release 2.0, complete with manual.

Minimum system requirements:
Any Macintosh with at least 512K.

SideKick and Reflex are registered trademarks and Outlook and MacPlan are trademarks of Borland International. Other brand and product names are trademarks or registered trademarks of their respective holders. Copyright 1987 Borland International BI-1138

BORLAND INTERNATIONAL

For the dealer nearest you or to order by phone

Call (800) 255-8008

In California: (800) 742-1133
In Canada: (800) 237-1136

BORLAND

Please circle 137 on reader service card.

DON'T LET THE MACINTOSH SCREEN CONFINE YOU!

Introducing Stepping Out™ The Macintosh™ Screen Extender

Now it's possible to see and work on a full page, without having to go to the expense of buying a large screen monitor!

You won't be confined by your Macintosh screen anymore. Choose your screen size. Zip across entire pages in a single mousestroke. View the full page reduced with a simple key command. You can even zoom in and work on details.

Stepping Out is the ideal program for desktop publishing, engineering, design... any application that is enhanced by a full page display.

Best of all, Stepping Out is only $95.

To find out more, visit your local computer dealer or call:

Berkeley System Design
1708 Shattuck Avenue
Berkeley, CA 94709
415-540-5536

berkeley system design

Please circle 23 on reader service card.

QUICK CLICKS

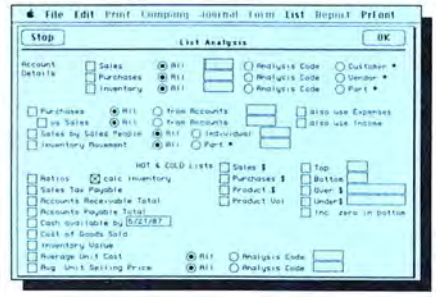
journal entries. Error handling is barely mentioned in the manual and difficult to accomplish within the program.

Posting is much easier since all of the ledgers and journals are fully integrated. The program automatically prints out an audit trail whenever you post the journals. Inventory especially is stronger now that it is instantly updated from both receivables and payables.

Accountant, Inc.'s printing options include several dozen buttons that customize reports. Unfortunately, the reports appear in narrow windows that conceal some of the important data. You must manually adjust the window to see the data properly.

A series of ID codes on the entry cards for customers, vendors and inventory items allow sophisticated sorting. For instance, users can assign IDs to values such as volume of business done, geographical area or subassembly of a manufactured product in inventory. The program prints mailing labels four up, and these can also be sorted by ID code.

Invoices, purchase orders and checks can be printed individually or in batches on plain paper or preprinted forms. The default font is 12-point Monaco. Changing fonts changes the entire document, which has the unwelcome side effect of destroying the column alignment in all reports. The manual suggests saving reports as text files and polishing them for presentation in a word processor. It's also possible to save reports in SYLK format.



There is no on-screen help available, though some windows contain brief explanatory notes. Alert boxes are rare and somewhat whimsically used. Error trapping has been added in version 2.0, but this remains an area that needs work. Tech support is offered by phone, mail or electronic mail. After the 90 day warranty, there is a dollar per minute charge to answer questions.

The manual is over 500 pages long, and is disappointingly weak. It's poorly printed, on cheap paper, and contains many typos. The first 70 pages review the possible menu selections. Most of the remaining 380 pages are taken up by three lengthy and redundant examples. Though the examples are informative, it's difficult to dig out basic functions. A new manual is in the works, and it is sorely needed.

If your concern about the cost of accounting software makes it easy for you to overlook the barebones look and feel of this product, then *Accountant, Inc.* certainly deserves consideration.—*Scott Beamer*

KADMOS GREEK FONT

$$\$\$\$\frac{1}{2}$$

List Price: $85. Published by Allotype Typographics, 1600 Packard Rd., Suite 5, Ann Arbor, MI 48104. (313) 663-1989. Not copy protected.

The first thing I ever saw a LaserWriter print was a Greek letter from its Symbol font. I immediately assumed that it would revolutionize the classical textbook industry (or so I hoped, since I was fed up with paying sky-high prices for slim texts). Alas, the Symbol font was not meant to generate Greek (neither modern nor ancient), but only to provide a host of *mathematical* symbols. The nuts and bolts of ancient Greek (its myriad of accents, subscripts and breathing marks) were sadly absent.

But no more. There are now laser fonts of the full character set of ancient Greek that will print flawlessly on any PostScript output device (like a LaserWriter). Oxford University Press take note.

For example, Allotype Typographics, makers of several laser fonts (including one in Polish) has a font called *Kadmos*, which is an admirable attempt to bring Greek to the Mac.

I say attempt because providing a way to print ancient Greek is a real challenge. The main problem is getting all the variations of accented letters onto the keyboard. There are basically three approaches to this problem. One, create a bunch of dead keys with the various accent combinations so that they can be placed over any character. (This is what the *LaserGreek* font from Linguists' Software does.) Two, use up all the Shift, Option, and Option-Shift characters to provide the various versions of an accented letter. Three, don't even try. (Such fonts are suitable only for modern Greek.) The second strategy is the one taken by Allotype's *Kadmos Greek Font*.

PRODUCT PHOTOS BY GARY BUSS

Super *your* Mac:

How to give your 512, Plus, or SE the hard disk performance of a Macintosh II. DataFrame *highest performance* drives.

The new Macintosh II features a disk technology called 1:1 interleaving for highest performance.

The DataFrame XP family of hard drives has delivered that same 1:1 performance, *to any Macintosh*, for over a year now.

Who needs faster disk performance?

Everyone. The faster the disk, the faster the Mac system. Faster program loading, faster operation, faster saves. You work faster, because you wait less. That's why InfoWorld concluded DataFrame's speed "shows just how good the Mac can be."

". . . leaves the others in the dust."

InfoWorld compared. After measuring the DataFrame to be *significantly* faster than the Macintosh SE internal hard drive, they went on to compare DataFrame to the fastest drive they'd seen for *any* computer. The result: "It left that pony in the dust, too."

InfoWorld's conclusion: "the fastest drive we've tested."

Loaded with great SuperMac software—including SuperLaserSpool and DiskFit.

Says MacWorld, "SuperLaserSpool is the most complete and well designed spooler available for the Mac." And DiskFit earned the highest rating MacUser ever awarded a backup program.

Plus, True Portability.

The same 1:1 interleave that makes DataFrame so fast also makes it truly portable. Swap it between any Mac II, SE, Plus, or 512—with *full* Mac II disk performance. No other drive offers this interchangeability.

No reason to wait!

Equipped with a DataFrame, your 512, Plus, or SE will *outperform* Apple's new, hard-drive SE. And your Mac II will perform to its fullest potential.

Visit your SuperMac dealer, and see why over 25,000 DataFrame owners have moved into the fast lane with what MacWorld called the "Porsche among disk drives."

SuperMac Technology
295 N. Bernardo
Mountain View, CA 94043
(415) 964-8884

SUPERMAC TECHNOLOGY

With *Kadmos,* for example, there's a separate character for each of these omega combos: ÷, Δ, <<, ‘, ”, “, –, œ, *f*, Œ, —, and ◊.

The trade-off, of course, for this mother lode of relatively hidden characters is the frustration of finding the key you need. *Kadmos'* major selling point is that its keyboard layout comes in two versions, closely copying the keyboards of two popular Greek screen fonts: SMK GreekKeys and the Colophon Greek font designed at Wayne State University.

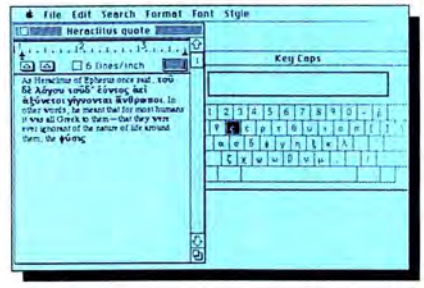
This means that if you've been using either of these ImageWriter fonts, the *Kadmos* font will be a painless transition in terms of learning the keyboard, and—even more important—it will print your already-typed documents on the LaserWriter without scrambling the characters. If you already have a dissertation typed in Colophon, let's say, Allotype's *Kadmos* is an absolute must if you want to print to the LaserWriter.

But if you don't already use a Greek screen font, it's an open question as to whether you want to learn the keyboard using scores of dead keys or using a unique keystroke combination per character. In either case, you'll find yourself relying on the *Key Caps* desk accessory. (Hint: Try shrinking your *MacWrite* window to half the width and put the *Key Caps* desk accessory window on the other half. Even though the *Key Caps* window is not the active window, it still shows you the Greek layout as you type.)

The difficulty with using the *Kadmos* font's solution to the accent problem is that there are really not enough key combinations left over for other useful characters. One omission is true quotation marks in the font (it has only a single ditto mark, ", for both right and left quote marks). It's true that the ancient Greeks did not use quotation marks, but classical texts *do* use them, so their omission from *Kadmos* is an unfortunate flaw. Zeus knows, lots of characters are included that are used less often (like the Homeric digamma W, or the number symbols sampi Q and koppa q).

Moreover, the absence of any Latin alphabet characters makes the font unusable for *criticus apparatus.* And if you plan on scanning poetry, be forewarned that only the *GreekKeys* version of *Kadmos* has a macron and a breve. In contrast, *LaserGreek,* because it uses 36 dead keys, has room for every imaginable symbol for scanning and *criticus apparatus.*

For those who have not dabbled in the mysteries of downloadable fonts to the LaserWriter, the Allotype manual does a very good job of covering all the bases and considering every possibility. Unfortunately, there seem to be a lot of possibilities. Do you want automatic or manual downloading? Do you have a version of *Font/DA Mover* earlier than 3.0? (If so, don't use it to move fonts into your system if you ever want to take advantage of automatic downloading.)



And even more confusing, do you plan to use *PageMaker.* (If you do, you'll have to use yet another set of screen and laser fonts so that *PageMaker's* OPTION-SHIFT-3 reserved keystroke is kept intact.) Once these questions are answered, the *Kadmos Greek Font* is used just like any other: Choose it from the Font menu, type (in Greek!), and print (in Greek!).

The decision whether to buy *Kadmos* or a competitor depends on what keyboard layout you either already have or want to learn. But once you take the step, you'll be proud to admit it's all Greek to you.—*Dave Valiulis*

SUPERRAM 2 AND SUPERRAM 4 ★★★½

List Price: SuperRam 2, $499; SuperRam 4, $899. Manufactured by SuperMac Technology, 950 N. Rengstorff, Mountain View, CA 94043. (415) 964-8884.

The benefits of adding more memory to your Macintosh are easy to pinpoint: faster operation, more *Switcher* partitions and bigger RAMdisks for speedier graphics and desktop publishing. However, actually adding the memory can be a shock to your wallet. The least expensive option is to buy a third-party upgrade and install it yourself, but this can be a different kind of shock. Particularly if you've never cracked your Mac before.

The SuperMac 2- and 4-megabyte upgrades are fairly easy to install. The documentation specifies that an authorized SuperMac dealer should perform the upgrade, but if you are familiar with the innards of your Mac and you know how to use a voltmeter, you can install the upgrade yourself.

The SuperRam 2 kit comes with a 1-megabyte memory module, a RAM adaptor module, a modified power/video cable, a jumper wire and a fan. Installing it is straightforward. Once you have your Mac apart, you locate and remove the SIMMs from your motherboard. Then locate the CAS PAL chip and attach the jumper cable so the Mac can find and use the additional memory.

The Apple SIMMs clip into the SuperMac memory module. Once the 1-megabyte module is clipped into place, the adapter is plugged into the SIMM socket on the motherboard. SuperMac supplies a new power/video connector that has a breakaway for the fan.

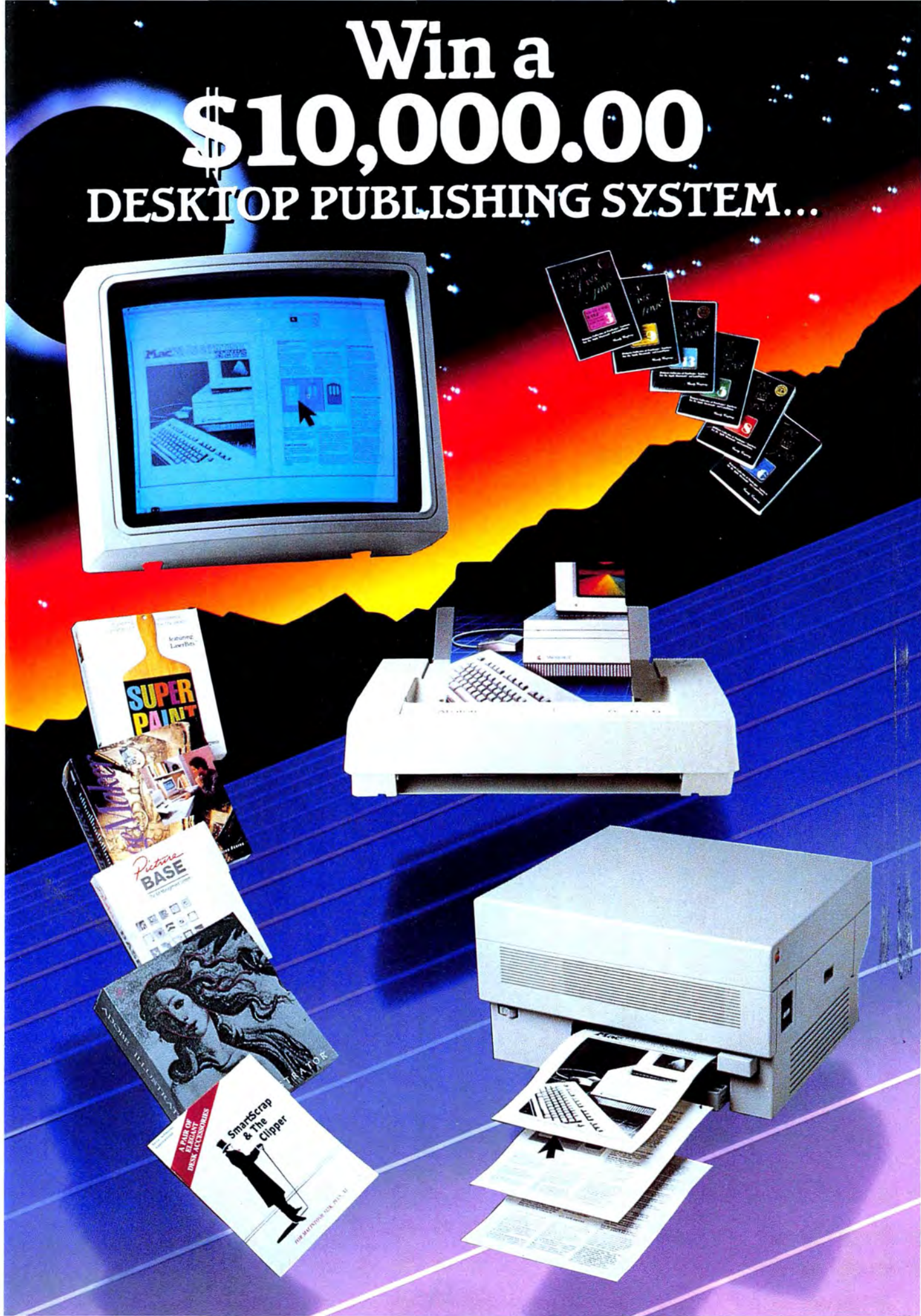
The documentation says that the fan is a precaution for the 2-megabyte upgrade and a necessity for the 4-megabyte. The kit comes with two mylar strips that you place over the vents on the top of the machine. This channels the air up from the base of the Mac and out the back vents. The fan slides into the rear of the Mac casing between the right wall of the Mac and the handle indention. Prongs on the side of the fan hold it snugly in place. After installing the chips and reconnecting the cables, check the voltage at the motherboard so that the power supply is not unduly stressed.

The SuperRam 4 upgrade is an expansion for the 2 megabyte upgrade. You get two 1-megabyte memory modules and a power supply booster. The power supply booster is the power/video cable with a power booster attached to regulate the motherboard's voltage without taxing the Mac's power supply. The SuperRam 4 installation is essentially the same, but you don't have to use the jumper. Instead, you remove the R8 resister. Bear in mind that even the friendly Apple upgrade requires this (check *Inside Macintosh,* vol. 4 if you don't believe me). You generally are not privy to this alteration to the Mac's board when you let a dealer perform the upgrade.

The SuperRam 4 tends to run a little hot. SuperMac does not use the CMOS chips as Dove does. The left side of the computer gets warm to the touch. I initially expected to have trouble with my power supply—not because I suspected the quality of the upgrade, but because my Mac is a vintage 1984 machine with its original power supply (now that I've said that, it will probably blow). I am inclined to credit the modified power supply for now having 4

PRODUCT PHOTOS BY GARY BUSS

Win a $10,000.00 DESKTOP PUBLISHING SYSTEM...



MORE FOR YOUR MAC...

UTILITIES

Affinity
Tempo 1.1 *(Macro utility)* $55.00
Berkeley System Design
Stepping Out *(full screen w/o scrolling)* 58.00
CE Software
DiskTop 2.0 ..... 32.00
Central Point
Copy II Mac *(with MacTools)* 20.00
Dove
RamSnap 35.00
Dreams of the Phoenix
Quick & Dirty Utilities I or II 35.00
FWB
Hard Disk Backup 38.00
Hard Disk Partition *(speeds access)* 38.00
Hard Disk Utility *(back up utilities)* 56.00
Ideaform
Disk Quick *(hard disk organizer)* 26.00
MacLabeler 2.2 *(prints disk labels)* 29.00
Infosphere
Laser Serve *(networking software)* 65.00
Jasik
MacNosy *(global disassembler)* 65.00
MacMemory
MaxPrint & MaxRam 45.00
Mainstay
Disk Ranger 36.00
MacFlow 85.00
Ncryptor 29.00
Microanalyst
MacZap *(disk utility)* 36.00
New Canaan
MacDisk Catalogue II *(requires 512k)* 31.00
MDC Finder *(requires 512k)* 20.00
Paragon
Qued *(quality editor)* 49.00
PBI
HFS Locator + ... 26.00
Icon Switcher 14.00
PCPC
HFS Backup 2.0 ..... 29.00
Silicon Beach
Silicon Press *(printer utilities)* 41.00

Turbo Mouse (Kensington) — Gain finger tip control over your graphics — without losing use of your mouse. *(input/output)* **$79**

Softstyle
Printworks for the Mac 47.00
SuperMac
Disk Fit 45.00
Super Spool 39.00
Super Laser Spool – Single User 99.00
Super Laser Spool – Multi User 259.00
Tangent
PC Mac Key 119.00
Think Tech
Laser Speed Multiuser *(laser utilities)* 359.00
Laser Speed Single User *(spooler)* 67.00
William & Marcias
MyDiskLabeler B&W *(design labels)* 24.00
MyDiskLabeler w/Color 33.00
MyDiskLabeler w/Laser 35.00

DESK ACCESSORIES

Batteries Inc/Electronic
Battery Pak 1.1 *(desk accessories)* 34.00
Bonadio
Expressionist *(equation manipulator)* 33.00
Borland
Sidekick 2.0 ..... 59.00
Cortland
Top Desk 2.1 *(with new accessories)* 34.00
Dubl-Click
Calculator Construction Set 39.00
Imagine
Smart Alarms 38.00
Solutions
Smart Scrap & Clipper 41.00

LANGUAGES

Borland
Turbo Pascal 59.00
Consulair
MacC/MacC Toolkit 4.5 ..... 259.00

WriteNow (T-Maker) — Column ability, spelling checker, WYSIWYG, and much more, all with MacWrite's ease of operation. *(word processors)* **$99**

Macintosh 68000 Dev. System 59.00
Mainstay
V.I.P. 89.00
Microsoft
Basic Compiler 1.0 ..... 119.00
Basic Interpreter 3.0 ..... 64.00
Fortran Compiler 2.2 ..... 169.00
Logo 75.00
Semantic Microsystems
MacScheme 90.00
Think Tech
Lightspeed C *(super compiler)* 127.00
Lightspeed Pascal 87.00
TML Systems
Data Base Toolkit 64.00
TML Pascal 2.0 *(compiler)* 68.00
Zedcor
ZBasic 65.00

COMMUNICATIONS

Compuserve
Compuserve Starter 24.00
Data VIZ
MacLink Plus w/Cable 159.00
Hayes
Smartcom II *(communications)* 88.00
Palantir
In Talk *(communication/emulation)* 79.00

Pocket Modem (Migent) — A 300/1200 Hayes-compatible modem that fits in a shirt pocket. Dual phone jacks. Cables included. **$169**

Peripherals
Versa Term 79.00
Versa Term Pro 177.00
Software Ventures
Microphone 1.1 *(communications)* 115.00
Source
Subscription & Manual 30.00

DATABASE SOFTWARE

Blyth
Omnis 3 + ... 279.00
Omnis 3 + Multi User Versions 569.00
Borland
Reflex *(data analysis)* 59.00
Forethought
Filemaker *(custom forms & reports)* 79.00
Filemaker Plus *(full featured)* 159.00
Microsoft
File 1.05 *(data base)* 110.00
Nantucket Corporation
McMax 219.00
Odesta
Double Helix *(relational database)* 275.00
Helix 2.0 *(requires ext drive)* 105.00
Multi User Helix *(req 512k or plus)* 439.00
Personal Bibliographic
Pro. Bibliographic System 199.00
Provue
Overvue 2.0 *(power database)* 149.00
Software Disc
Record Holder Plus *(req. 512k)* 41.00
Telos
Filevision 112.00

BUSINESS SOFTWARE

Batteries Inc/Electronic
Time Link *(diary and calendar)* 29.00
Bravo
MacCalc 83.00
Cricket
Cricket Graph *(advanced graphics)* 127.00
Data Tailor
Trapeze *(unstructured database)* 173.00
Layered
Front Desk 75.00
Notes *(Excel-PageMaker-Works, ea.)* 42.00

Dark Castle (Silicon Beach) — Spectacular graphics, animation, and sound create this best seller which MacUser gave five mice. *(games)* **$28**

Micro Planning
Micro Planner Plus *(req 512k)* 299.00
Microsoft
Excel 1.04 ..... 224.00
Multiplan 1.1 ..... 105.00
Works 1.0 *(integrated software)* 189.00
Satori
Bulk Mailer 74.00
Bulk Mailer Plus 225.00
Legal Billing 385.00
Legal Billing II 575.00
Project Billing 445.00
SMS
Parameter Manager 179.00
Softview
Mac in Use *(time scheduler)* 30.00
T-Maker
Click on Work Sheet 46.00
Target
Memorandum 69.00

...From MacWAREHOUSE™

Just look at what you can win...

POWERFUL SOFTWARE...

SUPERPAINT — Advanced graphics with full screen editing, multiple windows and reduced view. Dot by dot editing at 300 DPI plus object manipulation.

PAGEMAKER 2.0-Pages are easy to layout and design because PageMaker lets you work on 2 pages at once. Add a dictionary, automatic justification and typographic controls and your Mac just turned into a design studio.

PICTUREBASE — Organize your growing collection with PictureBase. Graphics are organized in libraries and can be searched by your own keywords. An art management system that grows with your needs.

ADOBE ILLUSTRATOR — Adobe uses lines and curves to build an image — not dots. The result is not a computer drawing but a work of fine art. Combine multiple scanned images and add your own finishing touches.

SMARTSCRAP & THE CLIPPER — A scrapbook, scaling and cropping tool that's easy to use. Find any picture in the scrapbook with a unique pictorial index. Trim and scale before pasting. Works with existing scrapbook files.

THE SOFTWARE ABOVE HAS A RETAIL VALUE OF OVER $1200.00

STRETCH SCREEN MONITOR — View two pages on the crystal clear 19" screen. Create two page "spreads' without scrolling. The Stretch Screen is a must for Desktop Publishing. From Network Specialties. A $1995.00 retail value.

CASADY FLUENT LASER FONT LIBRARY — For the times when you want to add a bit of flair to your creations you'll have these unique Casady type fonts to choose from. A $349.00 retail value.

ABATON SCAN 300/SF SCANNER — Scan a drawing or photograph in just 14 seconds. Scale up or down as you scan and produce images with up to 64 levels of gray. Holds up to 10 sheets for scanning. A $1895.00 retail value.

THE LASERWRITER PLUS — A built-in computer to monitor print quality and a preloaded bank of type fonts produces publication-grade print output. The high-resolution printing and ability to combine text and graphics make it an indispensable Desktop Publishing tool. A $5799.00 retail value.

Stretch Screen Monitor is a trademark of Network Specialties. Abaton Scan 300/SF is a trademark of Abaton Technology Corporation. LaserWriter Plus are registered trademarks of Apple Computer, Inc. SuperPaint is a registered trademark of Silicon Beach Software Inc. PageMaker® is a registered trademark of Aldus Corporation. PictureBase is a registered trademark of Symmetry Corp. Adobe Illustrator is a trademark of Adobe Systems Incorporated. Smartscrap & The Clipper are registered trademarks of Solutions Inc. Casady Fluent Laser Fonts is a registered trademark of Casady Company.

THE ALL NEW MacWAREHOUSE™ GIVEAWAY!

If you haven't been bitten by the bug yet you're about to be! The "bug" is Desktop Publishing and it's very contagious!

YOU DON'T HAVE TO BE A PUBLISHER...YOU DON'T EVEN NEED A DESKTOP!

All you need is your Mac — We'll supply the rest! Put the knowledge of a designer and the power of a graphics studio to work for you. The Desktop Publishing System is all you need for professional results. And the results are immediate. You can control the scheduling, completion and costs of all of your creative endeavors.

Run any photo or drawing through the new ABATON SCAN 300/SF SCANNER and file it for later use. Or combine it with text, photos and graphics. Choose from hundreds of different type faces for a professional, polished look.

CAN'T DRAW A STRAIGHT LINE? YOU DON'T HAVE TO!

Whether its a product catalog, newsletter, term paper, business plan or planning an addition to your house. You can do it all. The software gives you the creative freedom to combine text with stunning graphics. View your masterpiece on the oversized STRETCH SCREEN and print the finished product on the crystal clear APPLE LASERWRITER.

We'll give you everything you'll need for publication-quality results. Powerful, innovative software programs...*Aldus Pagemaker, Adobe Illustrator, Superpaint By Silicon Beach, Picture Base By Symmetry, Smartscrap & The Clipper By Solutions, Inc. And 6 Volumes Of Fluent Laser Fonts By Casady.*

THE DESKTOP SUPER SYSTEM INCLUDES EVERYTHING DESCRIBED ABOVE! RETAIL VALUE OVER $10,000.00...ABSOLUTELY FREE!

IT'S EASY TO ENTER...as soon as we receive your phone or mail order you are automatically entered in the drawing. Or, to enter without purchasing, just send in the official entry coupon from this ad.

And Remember...MacWAREHOUSE™ will provide you with all of your Mac needs. If it doesn't run on a Mac you won't find it here! When you think of your Mac think of MacWarehouse!

OFFICIAL ENTRY COUPON

MacWarehouse "Desktop Giveaway"
1690 Oak Street
P.O. Box 1579
Lakewood, NJ 08701

Telephone orders will be automatically entered in the drawing. If you are not placing an order you can still enter by calling 1-800-622-6222 or by mailing in this official entry coupon.

Name _____

Address _____ Apt. # _____

City _____ State _____ Zip _____

K

MacWAREHOUSE™

TO ORDER CALL

1-800-255-6227

(1-800-ALL-MACS)

Inquiries: 201-367-0440 **Canada: 800-255-6447**

MU1087

FROM MacWAREHOUSE™

Peachtree
Back to Basic 3 Pack (GL, AP, AR) 129.00
Sierra On Line
MacOne Write GL, AP, AR ea. 39.00
MacOne Write Three Pack 59.00
Softsync
Accountant, Inc. 179.00
Personal Accountant 52.00
Survivor
MacMoney *(personal finance)* 42.00

STATISTICAL ANALYSIS

Brainpower
Statview *(statistics analysis)* 35.00
Statview 512 + *(requires 512k)* 179.00
Cricket
Statworks 1.2 *(statistical package)* 77.00
D2 Software
MacSpin 1.1 . . . . . 120.00

MUSIC AND SOUND

Electronic Arts
Deluxe Music Constrn 2.0 . . . . . 62.00
Great Wave
Loc 29.00
Impulse
MacNifty Audio Dig. w/Sound Wave. . . 134.00
MacNifty Stereo Music MNS-300 . . . . . 99.00
Studio Session. 69.00

ChessMaster 2000 (Electronic Arts) — Considered the "best" computer chess program available. 2D & 3D views. "Five Mice" *(games)* **$30**

Magnum
Natural Sound Cable & Editor Disk. . . . 89.00
Natural Sound Effects 27.00
Passport Design
Passport Midi Interface 87.00

EDUCATIONAL/PERSONAL

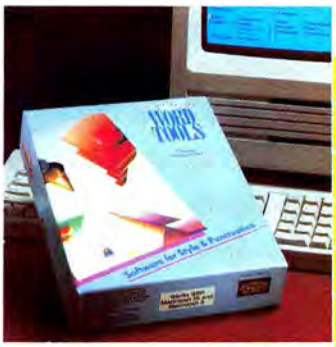
Addison Wesley
Puppy Love *(dog training game)* 14.00
Broderbund
Geometry 64.00
Toy Shop *(build your own)* 39.00
Camde
Nutricalc *(diet analysis)* 49.00
Nutricalc Plus *(in depth nutrition)* 175.00
Davidson
Math Blaster 28.00
Speed Reader II 39.00
Word Attack! 28.00
First Byte
First Shapes 27.00
Kid Talk, Math Talk ea. 27.00
Speller Bee 27.00
Forethought
Typing Intrigue 34.00
Fortnum
MacChemistry. 89.00
Great Wave
Kids Time 28.00
Hayden
Score Improvement ACT 59.00
MicroMaps
MacAtlas USA Vol I 49.00
MacAtlas World Vol II 49.00
Mindscape
Perfect Score S.A.T. *(test preparation)* . . 47.00
Nolo Press
Will Writer 2.0 *(prepare your own will)* . . . 31.00
Palantir
MacType 26.00
Rubicon
Dinner At Eight *(recipes)* 35.00
Dinner/Palate Bundle. 52.00
Silver Palate Collection *(fine dining)* 28.00
Scarborough
MasterType 38.00
Simon & Schuster
Typing Tutor III 35.00
Spinnaker
Typing Made Easy 36.00
Springboard
Early Games 28.00
Easy as ABC 28.00
Think Educ
MacEdge 28.00
MacEdge II 28.00
MacEdge Plus 28.00
Mind over Mac. 28.00

GAMES

Activision
Hacker *(break into computer)* 27.00
Hacker II *(international intrigue)* 30.00
Shanghai *(strategy)* 24.00
Tass Times in Tonetown 21.00
Avalon Hill
MacPro Football 30.00
Blue Chip
Millionaire 35.00
Broderbund
Ancient Art of War *(battle strategy)* 27.00
Lode Runner 24.00
Bullseye
Ferrari Grand Prix *(racing)* 34.00
Fokker Triplane Simulator. 34.00
Electronic Arts
Archon *(arcade)* 27.00
Chessmaster 2000 *(deluxe chess)*. . . . 30.00
One on One *(Dr. J vs. Larry Bird)* 27.00
Patton vs. Rommel *(strategy)* 27.00
Pinball Construction Set. 27.00
Scrabble *(word game)*. 27.00
Seven Cities of Gold 27.00
Skyfox *(3-D dogfight)*. 27.00
Ultima III 25.00
Epyx
Sub Battle Simulator 24.00
Hayden
Sargon III *(chess challenge)* 29.00

Longfellow/Xerox Full-Page Display (Network Specialties) — Display an entire page of text without scrolling. *(input/output)* **$1395**

Infinity
Grand Slam Tennis 27.00
Infocom/Activision
Ballyhoo 24.00
Bureaucracy 24.00
Deadline 29.00
Hitchhikers Guide *(the classic)* 18.00
Hollywood Hijinx 25.00
Infidel 26.00
Invisiclues *(hint booklets)* ea. 6.00
Leather Goddess of Phobos 24.00
Mind Forever Voyaging 26.00
Moonmist 24.00
Planetfall 24.00
Sorcerer 26.00
Spellbreaker 29.00
Suspect. 26.00
Trinity 24.00
Wishbringer. 24.00
Zork Trilogy 45.00
Microsoft
Flight Simulator 1.0 . . . . . 32.00
Mindscape
Balance of Power. 30.00



Doug Clapp's Word Tools (Aegis) — "Power Tools" for writers includes style, punctuation, and usage tools. *(spelling checkers)* **$42**

Brataccus 30.00
Deja Vu *(who done it)*. 30.00
Forbidden Castle. 23.00
Goldfinger 24.00
High Stakes 24.00
King of Chicago. 30.00
Luscher Profile *(personality profile)* 24.00
Racter *(talking computer)* 27.00
Rambo 24.00
Shadow Gate. 30.00
Sinbad 32.00
Uninvited 30.00
View to a Kill *(James Bond thriller)* 24.00
Voodoo Island 24.00
Nuvo Lab Systems
MacMan 32.00
PBI
Feathers & Space 21.00
Strategic Conquest Plus 43.00
Polarware
Crimson Crown 23.00
Practical Computer
MacCourses 34.00
MacGolf 2.0 . . . . . 36.00
MacRacketball 36.00
Primera
Smash Hit Racketball. 15.00
Psion
Psion Chess 31.00
Qware
OrbQuest 29.00
Rainbird
Pawn 27.00
Sierra on Line
Championship Boxing 25.00
Kings Quest I, II or III 30.00
Silicon Beach
Airborne! 20.00
Dark Castle 28.00
Enchanted Scepters 21.00
World Builder *(game maker)* 41.00
Simon & Schuster
Great Paper Airplane Kit 24.00
Star Trek - Kobayashi Adventure 24.00
Sir Tech
MacWizardry *(classic fantasy)* 35.00
Sphere/Spectrum Holobyte
Falcon 26.00
Gato *(submarine adventure)* 26.00
Orbiter *(space shuttle)*. 27.00
Tellstar I or II *(req 512k)* ea 32.00
Timeline
Battle Stations 18.00
XOR
NFL Challenge 79.00

continued . .

MORE FOR YOUR MONEY.

WORD PROCESSORS AND OUTLINERS

Ann Arbor
FullWrite Professional . . . 179.00
Living Videotext
More *(presentation power)* . . . 154.00
Microsoft
Word 3.0 *(updated word processor)* . . . 239.00
MindWork
MindWrite *(outlining software)* . . . 89.00
Owl
Guide *(hypertext)* . . . 79.00
Guide Envelope System . . . 109.00
Symmetry
ACTA *(DA outliner)* . . . 38.00
T-Maker
Write Now *(new word processor)* . . . 99.00
Target
Voila *(DA outliner)* . . . 53.00

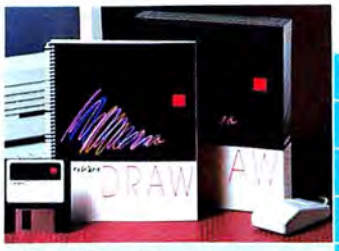
SPELLING CHECKERS

Aegis
Doug Clapps Word Tools . . . 42.00
Batteries Inc/Electronic
Thunder *(spelling checker)* . . . 29.00
Lundeen & Associates
WorksPlus Spell . . . 39.00
Target
Legal or Medical Dictionary . . . 53.00
MacLightning 2.0 *(spelling checker)* . . . 53.00
Mentor *(spelling checker)* . . . 69.00
Mentor Plus *(includes definitions)* . . . 129.00
Thesaurus *(ms word)* . . . 29.00
Working Software
Spellswell 1.3 *(spelling checker)* . . . 45.00
Spellswell Medical Dictionary . . . 59.00

Powerpoint (Forethought) — Create overheads, slides, flipcharts and more. Contains on screen slide sorter. **$237**

GRAPHICS

Ann Arbor
Full Paint *(full screen graphics)* . . . 49.00
Beck-Tech
MacMovies *(animation, req 512k)* . . . 69.00
Broderbund
Print Shop *(cards and more)* . . . 39.00
Cricket
Cricket Draw . . . 177.00
Desktop Graphics
Draw Art Vol. I . . . 28.00
Draw Art Vol. II . . . 42.00
Dubl-Click
Wet Paint I or II . . . 29.00
Wet Paint – Both . . . 49.00
Electronic Pub
MacMATBOOK/Vol 4-6 . . . 69.00
Enzan-Hoshigumi
Japanese Clip Art Scroll 1 "Earth" . . . 65.00
Japanese Clip Art Scroll 2 "Heaven" . . . 65.00
MacCalligraphy . . . 119.00
Hayden
Video Works *(animation)* . . . 59.00
Impulse
Comic Strip Factory . . . 65.00
Kensington
Graphic Accents *(requires paint)* . . . 29.00



Cricket Draw (Cricket Software) — Produce stunning, high-quality output with this object-oriented drawing program. *(graphics)* **$177**

LaserWare
LaserPaint . . . 359.00
LaserWorks . . . 199.00
Magnum
Slide Show Magician 1.3 . . . 35.00
Mindscape
Comic Works . . . 48.00
Graphic Works *(newsletters & more)* . . . 48.00
Polarware
Graphics Magician . . . 39.00
Silicon Beach
Super Paint *(super graphics)* . . . 53.00
Softstyle
Bluestart *(IBM driver)* . . . 29.00
Colormate 2.1 *(color printing utility)* . . . 48.00
Epstart *(Epson driver)* . . . 27.00
Jetstart *(HP driver)* . . . 29.00
Springboard
Art a la Mac Vol 1 or 2 *(ea.)* . . . 23.00
Certificate Maker . . . 35.00
Certificate Maker Library #1 . . . 21.00
Strider
Poster Maker . . . 29.00
Symmetry
Picture Base . . . 44.00
T-Maker
Click Art Business Image . . . 28.00
Click Art Effects or Holidays (ea.) . . . 28.00
Click Art Personal Graphics . . . 28.00
Click Art Publications . . . 28.00
Tangent
Laser Script Plus . . . 196.00

DESKTOP PUBLISHING PRODUCTS

Aldus
PageMaker 2.0 . . . 419.00
Boston Software
MacPublisher III . . . 177.00
Firebird
Laser Author . . . 105.00
Forethought
Power Point . . . 237.00
Letraset
Ready-Set-Go III *(page layout)* . . . 249.00
Orange Micro
Ragtime . . . 219.00
Solutions
Glue *(screen dumps)* . . . 41.00
Target
Scoop . . . 297.00

FONTS

Altsys
Fontastic *(design your own fonts)* . . . 27.00
Fontastic Plus . . . 49.00
Fontographer 2.2 *(laserwriter fonts)* . . . 245.00
Casady
Fluent Fonts *(double disk set)* . . . 29.00
Fluent Laser Fonts *(vols 1-15 ea.)* . . . 48.00
Dubl-Click
World Class Fonts I or II . . . 28.00
World Class Fonts – Both . . . 49.00
T-Maker
Click Art Laser Letters *(Bombay – Plymouth – Seville, each)* . . . 46.00
Click Art Letters I or II *(ea.)* . . . 28.00

CAD/CAM

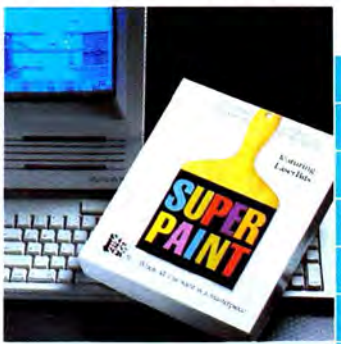
Challenger
Mac3D 2.0 *(3-D graphics)* . . . 119.00
Dreams of the Phoenix
Phoenix 3D Level I . . . 35.00
Enabling Tech
Pro 3D *(3D postscript graphics)* . . . 199.00
Innovative Data
MacDraft 1.2 *(power drafting)* . . . 159.00

NETWORKING PRODUCTS

Farralon
Phone Net 128/512 . . . 39.00
Phone Net Appletalk Adaptor . . . 6.00
Phone Net Plus . . . 39.00
Infosphere
MacServe *(networking software)* . . . 175.00
Think Tech
InBox Personal Connection . . . 85.00
InBox Starter Kit 2.0 *(3 Conns.)* . . . 235.00

FINANCIAL AND ACCOUNTING SOFTWARE

BPI
Entry General Accounting . . . 129.00
Buttondown
Profit Stalker II . . . 152.00
Digital ETC
MacAccountant *(accounting)* . . . 99.00
Turbo MacAccountant 2 . . . 262.00
Migent
In-House Accountant . . . 87.00
Monogram
Business Sense . . . 339.00
Dollars & Sense *(personal finance)* . . . 81.00



SuperPaint (Silicon Beach) — Painting, drawing, 300 dot-per-inch editing, new graphic tools, and more. *(graphics)* **$53**

1-800-255-6227

Inquiries: 201-367-0440 (1-800-ALL-MACS) **Canada: 800-255-6447**

MacWAREHOUSE™

1690 Oak Street, P.O. Box 1579, Lakewood, NJ, 08701

© Copyright 1987 Micro Warehouse, Inc. MacWAREHOUSE™ is a division of Micro Warehouse, Inc. MacWAREHOUSE™ and Micro Warehouse are trademarks of Micro Warehouse, Inc. Item availability and price subject to change without notice.

MEMBER DIRECT MARKETING ASSOCIATION

MU1087

MacWAREHOUSE™

More For Your Mac...More For Your Money!

DISK DRIVES/MEMORY UPGRADES

AST
2000 *(20 meg – 20 meg tape)* 1,479.00
4000 *(74 meg – 60 meg tape)* 3,895.00
Central Point
Quiet Drive 175.00
Dove
SCSI Interface Port 125.00
MacSnap 524 *(512k to 1 meg)* 139.00
MacSnap 524S *(incl SCSI interface)* 239.00
MacSnap 548 *(512k to 2 meg)* 369.00
MacSnap 548S *(incl SCSI interface)* 469.00
MacSnap Plus 2 *(MacPlus to 2 meg)* 249.00
MacSnap Plus 2H cmos *(Plus to 2)* 589.00
MacSnap Plus 2S cmos 660.00
MacSnap Plus 4H cmos *(Plus to 4)* 1,169.00
MacSnap Plus 4S cmos 1,210.00
MacSnap Tool Kit *(installation tools)* 14.00
Ehman Engineering
20 HD (SCSI) 890.00
800K Disk Drive 189.00
IOMEGA
Bernoulli Box *(dual 10 meg)* 1,419.00
Bernoulli Box *(dual 20 meg)* 1,849.00
Lodown
20 Meg SCSI 889.00
20/20 Combo 1,419.00
MacMemory
MaxPlus and MaxChill 360.00
MaxPort 139.00
Mirror
Fastport 139.00
MagNET 20X 779.00
MagNET 20X w/MacServe 849.00
MagNET 30X 945.00
MagNET 30X w/MacServe 995.00
MagNET 40/40 ..... 2,395.00
MagNET 40X 1,249.00
MagNET 85X *(with 40 meg tape)* 3,995.00
Magnum 800K Ext 209.00
Magnum Tape 20 ..... 899.00
Magnum Tape 40 ..... 1,025.00
PCPC
MacBottom HD20 *(Serial)* 865.00
MacBottom HD21 (SCSI) 859.00
MacBottom HD32 (SCSI) 999.00
MacBottom HD45 (SCSI) 1,285.00
Western Automation
Dasch Ramdisk 2000K 429.00

MindWrite (MindWork Software) — Outline based word processor for multiple need desktop publishers. *(word processors)* **$89**

MODEMS

Hayes
Smartmodem 1200 ..... 299.00
Smartmodem 1200 *(w/Smartcom)* 355.00
Smartmodem 2400 ..... 449.00
Transet 1000 Cable 31.00
Transet 1000-128 ..... 269.00
Transet 1000-512 ..... 359.00
Migen:
Pocket Modem *(ext. 300/1200 baud)* 169.00
Prometheus
Promodem 1200 ..... 279.00
US Robotics
Courier 1200 Modem 199.00
Courier 2400 Modem 359.00
Courier 2400E Modem 459.00
Courier 9600 Modem 729.00

BLANK MEDIA

3M
DS/DD *(box of 10)* 23.00
SS/DD *(box of 10)* 16.00
Citoh
DS/DD Color *(box of 10)* 26.00
SS/DD Color *(box of 10)* 20.00
Fuji
SS/DD *(box of 10)* 14.00
Maxell
DS/DD *(box of 10)* 21.00
SS/DD *(box of 10)* 14.00
Sony
DS/DD *(box of 10)* 21.00
SS/DD *(box of 10)* 14.00

INPUT/OUTPUT

Cambridge Auto
Numeric Turbo Touch 141.00
Kensington
Turbo Mouse 79.00
Turbo Mouse ADB *(for SE and Mac II)* 79.00
Koala
MacVision *(digitizer)* 169.00
Kraft
Quick Stick *(deluxe joy stick)* 49.00
Lodown
MS 300 Image Scanner 1,440.00
Network Specialties
Longfellow/Xerox Full-Page Display 1395.00
Stretch Screen 1,579.00
Nutmeg Systems
Nutmeg 19" Monitor 1579.00
Nutmeg/Xerox Full-Page Display 1395.00
Summagraphics
MacTablet 6 x 9 ..... 289.00
MacTablet 12 x 12 ..... 379.00

ACCESSORIES

Beck Tech
Fanny Mac 69.00
Curtis
Ruby *(6 outlets; filtered; 6 ft cord)* 55.00
Sapphire *(3 outlets – filtered)* 47.00
Diversions
Underware Ribbon – Black 9.00
Environmental
Ext Drive or Keypad Cover 7.00
Imagewriter II Cover 11.00
Laser Writer Cover 17.00
MacPlus & Keyboard Cover 15.00
Wide Imagewriter Cover 13.00

MacBottom HD45 (PCPC) — High memory and low profile hard disk from the makers of the best selling HD20. Super quiet. *(disk drives)* **$1285**

Ergotron
MacTilt *(stand for Mac & drive)* 69.00
MacTilt SE 69.00
Mouse Cleaner 360 ..... 14.00
I/O Designs
Imageware II Carrying Case 49.00
Imagewriter II Ribbon – Black or Color 5.00
Imagewriter II Four Color Ribbon 12.00
Macinware Plus Carrying Case 69.00
Macinware SE Carrying Case 82.00
Innovative Tech
Disk Directory *(holds 32 disks)* 18.00
Easel *(holds 20 disks)* 12.00
Library *(holds 80 disks)* 29.00
Pocket Pak *(holds 6 disks)* 9.00
Speed Pad 12.00
Kalmar
Rolltop Cabinet 45 Teak *(45 disks)* 14.00
Rolltop Cabinet 60 Teak *(60 disks)* 18.00
Rolltop Cabinet 90 Teak *(90 disks)* 21.00
Rolltop Cabinet 135 Teak *(135 disks)* 29.00
Kensington
A-B Box *(MacPlus)* 64.00
Appletalk Clips *(each)* 1.00
Appletalk Connectors *(each)* 1.00
Control Center 64.00
Disk Case *(holds 36 disks)* 19.00
Disk Drive Cleaning Kit 20.00
Imagewriter II Cover 9.00
MacPlus System Saver Cover 9.00
MacSE System Saver Cover 9.00
Mouse Cleaning Kit *(w/mouse pocket)* 17.00
Mouse Pocket *(holds the mouse)* 8.00
Mouseway *(mouse pad)* 8.00
Polarizing Filter *(reduce glare)* 34.00
Printer Muffler 80 ..... 39.00
Printer Muffler 132 ..... 52.00
Printer Stand 18.00
Surge Suppressor 34.00
System Saver Mac *(fan and more)* 64.00
Tilt/Swivel 22.00
Traveling Disk Case 6.00
Universal Copy Stand 24.00
Magnum
Mouse Mover 14.00
MPH
Mac B Cool *(quiet fan)* 99.00
Softstyle
MacEnhancer *(for plotters to printers)* 179.00

TO ORDER CALL: 1-800-255-6227 (1-800-ALL-MACS)

MONDAY THRU FRIDAY 8 A.M. to 11 P.M. (Eastern Time)
SATURDAY 8 A.M. to 8 P.M. (Eastern Time)
NOW OPEN SUNDAYS! 8 A.M. to 8 P.M. (Eastern Time)
Inquiries: 201-367-0440 Canada: 800-255-6447

- VISA and MASTERCARD accepted. No surcharge.
- Your credit card will not be charged until your order is shipped.
- If we must ship a partial order, we pay the freight on the remaining portion.
- All U.S. shipments are insured at no extra charge.
- We accept C.O.D. orders — $1,000 maximum — $2.00 surcharge.
- Corporate purchase orders accepted — $250 minimum.
- All products are covered by a 120 day limited warranty.*
- CT residents add 7.5% sales tax. NJ residents add 6.0% sales tax.

SHIPPING
- All software orders, add $2.00 per order.
- All hardware and peripherals add 2% ($2.00 minimum).
- We use 2nd day air if you are more than 2 days from us via UPS Ground.
- Federal Express and U.P.S. Overnight Service available.
- Alaska, Hawaii, Foreign, APO/FPO: Call for information.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion.

OFFICIAL RULES

1. All phone or mail orders will be automatically entered in the Desktop Publishing Giveaway. **2.** To enter without ordering, phone or complete the attached Official Entry Coupon and mail it to: "Desktop Publishing Giveaway," 1690 Oak Street, P.O. Box 1579, Lakewood, NJ 08701. No mechanically reproduced entries will be accepted. Limited to one entry per person. Entries must be received on or before January 31st, 1988. **3.** Additional entry coupons are available by sending a stamped, self addressed envelope to "MacWAREHOUSE Entry Coupon Request," 1690 Oak Street, P.O. Box 1579, Lakewood, NJ 08701. **4.** The winner will be selected in random drawing by the attorneys of MacWAREHOUSE, whose decision in this regard is final. The validity of any entry coupon is subject to verification by these attorneys, and must be completely filled out to be valid. No prize substitution will be allowed except as where necessary due to availability. Taxes are the responsibility of the winner. Odds of winning are dependent upon the total number of entries received. All prizes will be awarded. **5.** MacWAREHOUSE will announce the winner on or about the 15th day of February 1988, and will notify the winner within a reasonable amount of time thereafter. These dates are subject to change at the sole discretion of MacWAREHOUSE. If MacWAREHOUSE is unable to contact a given winner, an alternate winner will be selected by random drawing. **6.** The "Desktop Publishing Giveaway" is open to residents of the United States except where prohibited by law and regulation. Employees of BSA Inc., MacWarehouse Inc., and any of its suppliers, are not eligible. **7.** The prize consists of: an Apple Laserwriter Plus, Abaton Scan 300/SF scanner, Network Specialties 19" Stretch Screen monitor, and the following software products: Aldus Pagemaker, Adobe Illustrator, Silicon Beach SuperPaint, Solutions Inc. Smart Scrap & The Clipper, Symmetry Corp. PictureBase, and 6 volumes of Casady fluent laser fonts. Software volume and version numbers to be solely determined by MacWAREHOUSE. **8.** For the name of the winner, send a stamped, self addressed envelope to "MacWAREHOUSE winner's list, 1690 Oak Street, P.O. Box 1579, Lakewood, NJ 08701.

QUICK CLICKS

megabytes without having to replace my power supply.

The outstanding features of the SuperMac upgrades are the full lifetime warranty and the buffering. SuperMac will repair or replace any part of the upgrade that fails or any part of the Macintosh that fails as a result of defects in SuperMac products. Also, the chips in the upgrade are buffered so that they only deliver a combined load equal to a 256K chip. This reduces the wear and tear on the microprocessor and, so SuperMac claims, puts less of a load on it than a standard 1-megabyte Macintosh.

Unlike many of the companies supplying upgrades, SuperMac does not have a toll free number. The technical people are helpful and relatively prompt in returning your call when their lines are busy. But having to pay for support after you've paid for the product is irritating.

The SuperRam 4 is not compatible with big screens. The memory adaptor touches the top of the 68000. Since most interface cards clip over the 68000, the adapter gets in the way. Also, the SuperMac upgrades do not come with RAMdisk or caching software. This is not a problem since there are several good RAMdisk programs available in the public domain and from other vendors. But you'd expect the publisher's of *DiskFit* and *SuperLaserSpool* to have an equally sophisticated RAMdisk program.

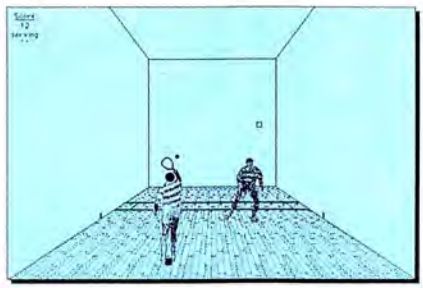
The SuperRam upgrades are a little more expensive than others and they do not come with software, but they are reliable, and their warranty takes some of the worry out of adding more memory to your Macintosh.—*Fred Terry*

MACRACQUETBALL ★★★½

List Price: $59.95. Published by Practical Computer Applications, Inc., 1305 Jefferson Highway, Champlin, MN 55316. (612) 427-4789. Requires 1M+. Copy protected.

One megabyte, once considered huge, is becoming a standard. The Mac Plus has sold in such numbers that *games* requiring "one meg" are beginning to appear. *MacRacquetball*, from PCAI, is the first.

All that memory for just a game? Well, *MacRacquetball*'s graphics are digitized from videos of real racquetball players in action, so what you see are solid-looking images. As the players move, their shadowing and shading change, giving them a high degree of three-dimensionality. Manipulating these images over a detailed "wood" floor while maintaining the spatial relationships of the game requires a lot of RAM.



MacRacquetball also introduces an innovation to the Mac that has been available with some games for other computers. When version 2.0 appears, interactive matches with another player will be possible on networks. You can do it now via connecting cable or modem. Using this mode will require that both players have their own copy of the game. (Upgrades will be free to registered owners.) Response should be virtually instantaneous on local hook-ups. Telephone communications over long distances, however, could introduce enough delay to affect play.

MacRacquetball is a good simulation. Players control the lighter figure on the screen. The darker image is your competitor, played by either the computer or another player in dual-player mode. The game can be fine tuned for different levels of play on a control panel screen. Up to 19 individual characteristics can be changed for both players. These controls can even simulate real players.

As in reality, success in *MacRacquetball* depends on quickness and anticipation. Move your player to intercept the flight of the ball and execute your shot. Learning to read the depth of the court on a two-dimensional screen requires practice and concentration, but adjusting game speed gives you a fighting chance at the start. Mouse inputs are instantly reflected on the screen. Effect a Zen-like composure to keep your player from twitching excitably.

The manual could go into more detail about the game of racquetball itself (only the basic rules are explained) and more specific as to how the simulation reproduces the physical actions of the sport. For example, serves and returns are diagrammed but the player is left to figure out how to accomplish them.

MacRacquetball is copy protected; it cannot even be moved onto a hard disk. My back-up habits are so ingrained that I find it unsettling to use master disks on a daily basis. If the possibility of losing your game to a trashed disk disturbs you as well, caveat emptor. [*Editor's Note: And the rating would be half a mouse higher if you could at least play from a hard disk, even if a key disk insertion is required. Besides, the Quit routine is so graceless that you had best turn off any hard disks before playing.*]

Finally, despite (or maybe due to) its detailed graphics, *MacRacquetball*'s animation lacks fluidity. The players, to my eyes, seem to waddle as they move. Still, the game is playable and engaging. And since the audio has also been generated from actual recordings, it sounds great. Racquetball enthusiasts will like it.—*Carlos Martinez*

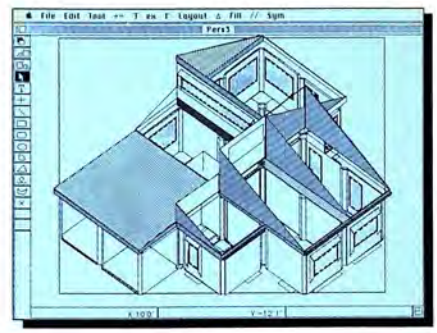
MINICAD ★★★★

List Price: $495. Published by Diehl Graphsoft, Inc., 8370 Court Ave., Suite 202, Ellicott City, MD 21043. (301) 461-9488. Requires 512K+. Version 3.0 reviewed. Copy protected.

MiniCad is a professional-level computer assisted drafting software package that is equally useful and usable in a graphics, engineering or architectural environment.

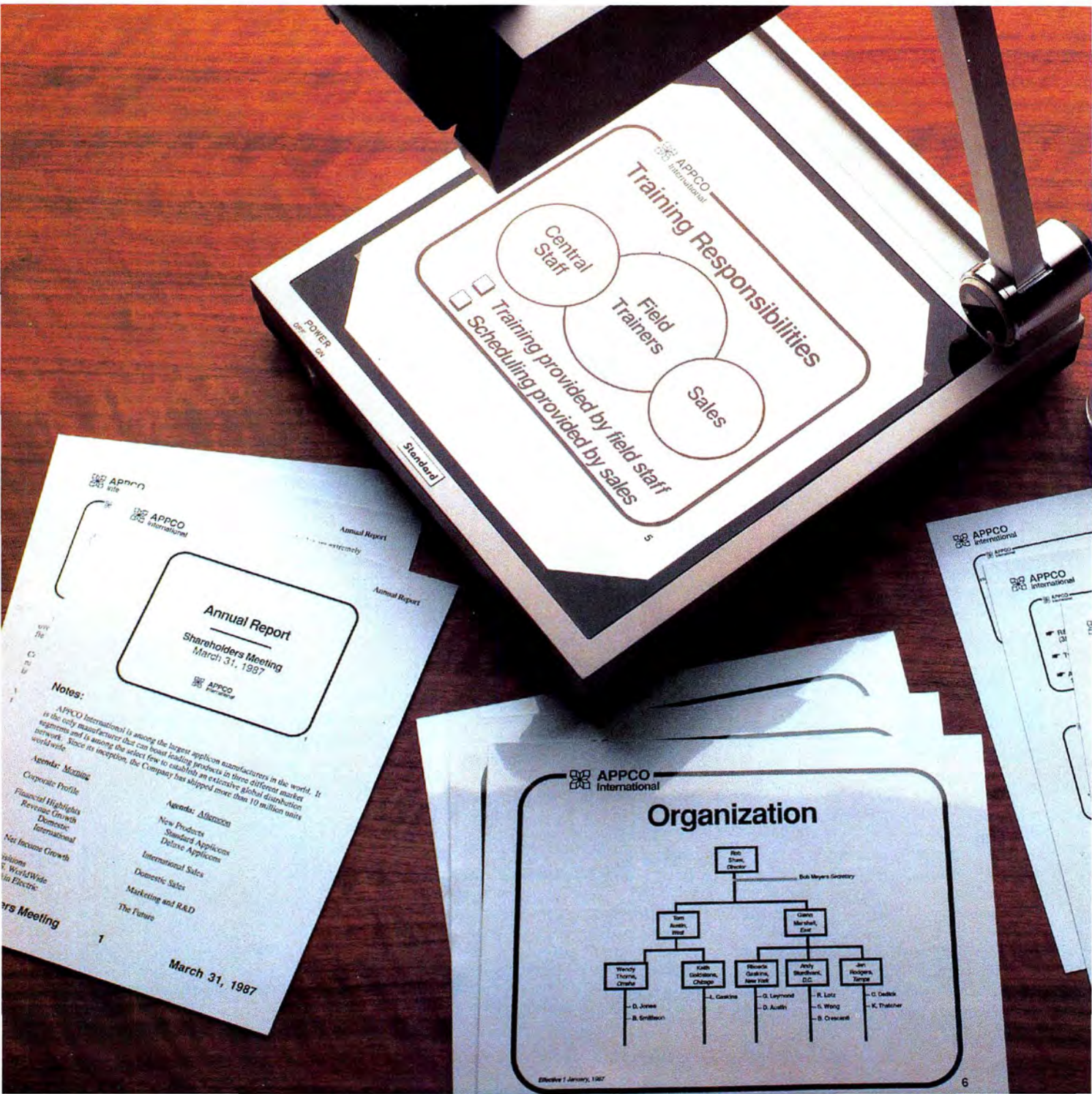
When you open *MiniCad*, it resembles an enhanced *MacDraw*, but as you use it, you realize that this program overcomes many of *MacDraw*'s limitations. For instance, *MiniCad* can place an object to 9-decimal accuracy. And it offers many standard CAD functions, like groups, dimensions and scaling.

Many features can only be accessed through the Shift, Option and Command keys since the pull-down menus are loaded with options. There are 30 commands hidden under the keys—a lot to remember, but a quick reference chart is included. And the zooming power of

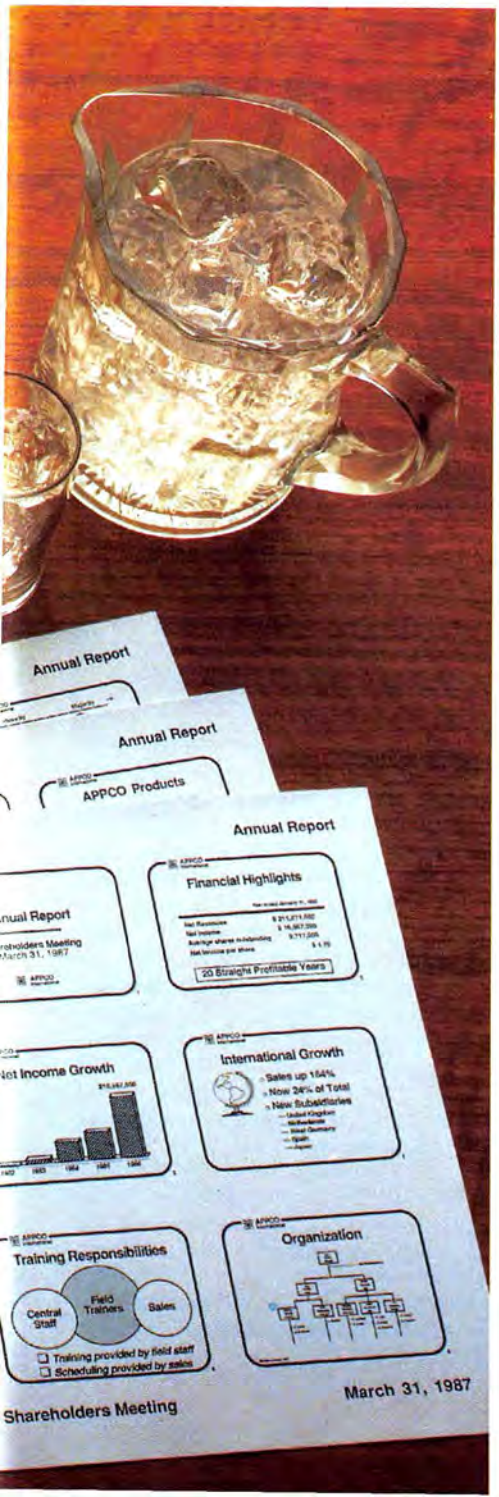


PRODUCT PHOTOS BY GARY BUSS

Everything you n
great presentatio



eed to make
ıs, just add water.



Introducing PowerPoint.™

Now you can put together the kind of presentations you've always wanted. Quickly. Easily.

Complete, professional presentations, whether it's for an unexpected sales meeting in 10 minutes, or the annual shareholders' meeting in a month.

With PowerPoint, you actually plan, compose and edit your entire presentation on your Macintosh™ computer. So you see exactly what you, and your audience, are going to see.

PowerPoint is the only presentation package that gives you everything you could want, the way you want it, when you want it — overheads, slides or flipcharts, plus speaker's notes and audience handouts.

It's like having an entire staff of writers, designers, typesetters, artists and a print shop all to yourself. But without the hassles and headaches.

With PowerPoint's free-form design capabilities, you can easily create everything on your screen, no artistic talent required. Mix typeset-quality text with diagrams, graphs and illustrations. Or, you can copy charts, tables and illustrations from other programs just as easily.

Once you've decided on the "look" you want — big logos, thin borders, today's date, whatever — PowerPoint can standardize that format for all your other visuals, automatically.

And with PowerPoint's unique Slide Sorters, you can quickly rearrange your slides or combine them with slides from other presentations, automatically reformatting them to your new look.

Last minute changes? No problem. You can make them in an instant with PowerPoint. Now you're ready to simply print out your notes, handouts, overheads or flipcharts.

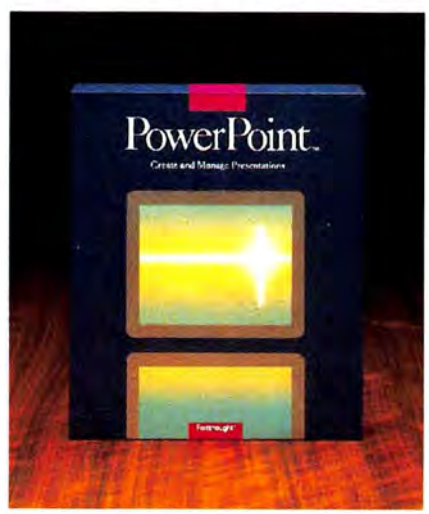
Then take a deep breath, pour yourself a glass of water, and you're set to wow 'em!

Because for just $395, you have the only program that gives you everything you need to make your points, powerfully.

Call 1-800-622-9273 today for the name of your nearest dealer.

We guarantee it.

If PowerPoint doesn't completely fulfill your expectations, call us and we'll solve your problem or arrange a refund.* From Forethought,® Inc.



© 1987 Forethought, Inc. Forethought and PowerPoint are trademarks of Forethought, Inc. Macintosh is a trademark of Apple Computer, Inc. *Refund must be requested within 30 days of purchase.

Please circle 225 on reader service card.

Break Those Handcuffs

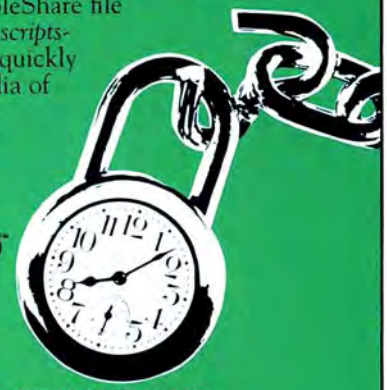
Introducing SoftBackup

Free yourself from the daily duty of backup. With SoftBackup™, you can backup by the clock. Without being anywhere near a Macintosh™.

Timed backup lets you set a time when backup will begin automatically. Run SoftBackup and set backup to start at midnight, for example. Then quit and go on to your other Macintosh work. Your files will *automatically* be backed up at midnight.

SoftBackup has all the features you'd expect from a backup product, including image and file by file backup, AppleShare file server support, and much more. Work with *scripts*- collections of files, folders, and options - to quickly save just what's needed. Back up to the media of your choice - use floppy diskettes or popular tape drives like those from Apple, LoDown and General Computer.

So break those backup handcuffs.



SOFTBACKUP™
Software Backup for Macintosh™

D1/O **Diversified I/O, Inc.**
1008 Stewart Drive, Sunnyvale, CA 94086 408-730-2171

Single user list price: $69.95. Multiple user list price: $139.95. SoftBackup is a trademark of Diversified I/O, Inc. Macintosh and AppleShare are trademarks of Apple Computer, Inc.

Please circle 51 on reader service card.

Scrolling **LaserCraft**™ IMAGES

PROFESSIONAL
Text and Graphic Tools
for POSTSCRIPT Printers

Hundreds of pure postscript routines that can be mixed and mingled to produce innumerable graphic effects. Print along paths, in circles, spirals, ellipses etc. Transform your present fonts into extended, super-bold, tall, thin or jumbo. Set text from 3 pts. to 720 pts. (10 inches) and beyond in increments of 1/10 th of a point. Transform your present fonts into 30 different styles.

Professional routines provide: kerning, scaling, shading, rotating and color separations. Patch directly into page makeup programs, word processors or even MacDraw! Download directly to a Linotronic. A 160 page manual gives detailed instructions on how to do things to create the special effects that *you* need. Here's just a partial list of what you can do with LaserCraft:

Text Routines
Certificate
Circular
Cylindrical
Diplomas
Emblem
Elliptical
Fitted
Jumbo
Rotated
Shaded
Shadowed
Transformed
As Windows

Graphic Techniques
Back Drops
Borders
Brushed-Metal Effects
Fountains
Line Art
Inverse Laser Output
32 Gray Screens
Lines to 10" thick
Curves - All kinds
Scroll Designs
Designer Grids 1, 2 & 3 pt. Perspective
Special Color Separation Folder

NANTUCKET INN

NIKROM™
176 Fort Pond Road ♦ Shirley, MA. 01464

For any Apple Macintosh
LaserCraft Pro - $139.95
Call Free 1 800 835-2246

Please circle 266 on reader service card.

QUICK CLICKS

MiniCad is limited only by the level of accuracy you choose. Among the well-integrated functions in this package necessary for CAD users are FILLET, INTERSECTION and TRIM.

Dimension Option and Line Marker Style (thin, standard, dot, slash and double slash) are useful for architects who mix different styles of dimensioning. The latest version (3.0) of the program comes with a free set of Architectural templates (Arch Pack) that is useful for that field.

MiniCad is simple and follows the Mac interface; if you know *MacDraw*, you can start simple drawings with very little help from the manual—which I found difficult to follow and extremely academic.

Output can be obtained through an ImageWriter or a LaserWriter. While plotter drivers and an IGES translator are available for *MiniCad*, they are published by third-party developers.

The integration of 2- and 3-D into *MiniCad* is very impressive. Most programs are strong in either 2- or 3-D, but not both. *MiniCad* switches between the two perspectives with ease. The Extru-

sion tool will take an object originally created in 2-D, give it height and then easily rotate it in a 3-D view.

MiniCad updates are frequent and readily available from Diehl for a $10 handling charge. *MiniCad* is compatible with other major programs like *PageMaker* and *MacDraw*. The program can be loaded with *Switcher*, but it runs best alone. Possible future developments include expanding the dimensioning function, integration of the 2- and 3-D perspectives so both windows remain open at once and adding a data base for bill of materials.

Diehl Graphsoft has a very good approach in developing *MiniCad*. They started with a small package and, by listening to the customer needs (through bulletin boards and a self published newsletter), were able to tailor the program into a very good one.—*Ernesto Moran*

Great Wave wants to help you educate your children

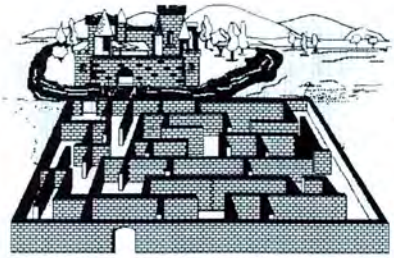
COMPUTER LEARNING MONTH
OCTOBER '87

Introducing...

NumberMaze™

More than just math, it makes learning math FUN!

Do you know where your children are? NumberMaze can take your children from whatever level of math they are at and help them to achieve even higher levels. Children can progress through addition, subtraction, division, and multiplication problems. With the story problems,



which are built from regular equations, math comes to life for your children. The computer-generated problems can be customized by parents and teachers for a specific math emphasis. NumberMaze has the ability to track the progress of many children.

The musical rewards, special graphics, and speech will have your children wanting to play ***NumberMaze***

Requires Macintosh 512K or more.

KidsTime™

For those of you who have bought KidsTime, we thank you. As for the rest of you, your children are waiting...

The best selling educational software package for your children, featuring five exciting programs.

"Dollar for dollar, it's hard to find software that offers more educational value and fun."
—MacWorld
"Dad, I want to play KidsTime!"
—Steven; age 4, June 4
"Dad, I want to play KidsTime!"
—Steven; age 4, June 5

MacUser EDITORS' CHOICE AWARD

ABKey™ Letter and word recognition is taught through visual, speech, and keyboard interaction.

Match-it™ Several games to teach categorization, words, shapes, letters and puzzles

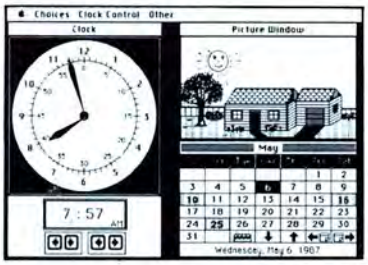
StoryWriter Your children can use the Storybook font to create fun stories with both words and pictures. The computer will also read the stories back to them.

KidsNotes™ An introduction to the basic concepts of music and composition. Children can also compose their own music.

Dot-to-Dot An old classic developed for a new generation which teaches counting and alphabet skills.

TimeMasters™

For parents who want their children to understand the answer to the age old question, "What Time Is It!"



TimeMasters was developed to give your children an understanding of time concepts.

Exploring

Exploring time can be fun for your children as they use the mouse to investigate the clock or calendar at their own pace.

TIMEMASTERS uses graphic displays so children can associate time, days, months, and seasons.

Learning

The computer-generated lessons can teach the association between time, days, months, and seasons.

Testing

Children can test the knowledge and skills they have learned while exploring and learning about time concepts.

NumberMaze, TimeMasters, or KidsTime

Products are trademarks of their respective manufacturer.

$49.95 each

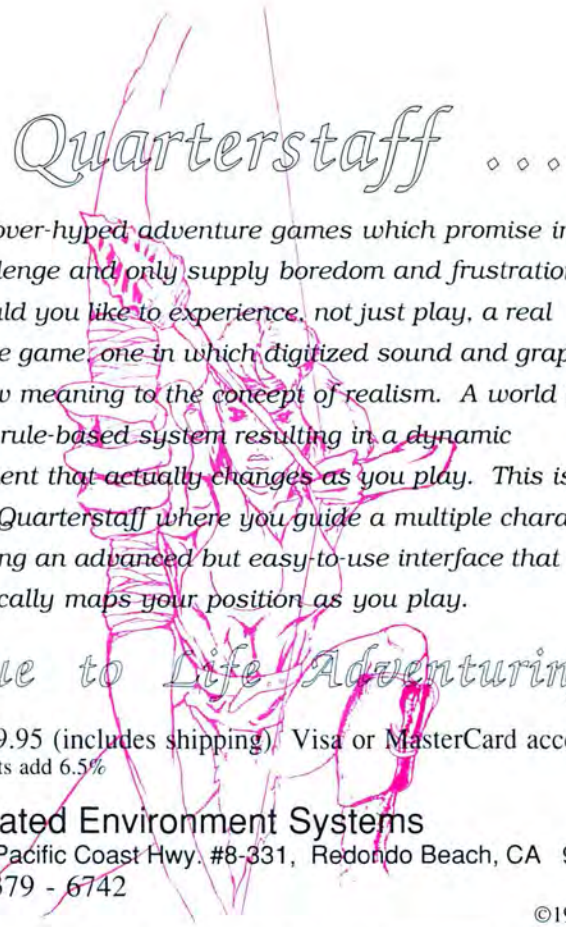
For more information, ask your dealer or call Great Wave Software.

Great Wave Software™

Software Excellence for All the Ages

5353 Scotts Valley Drive
Scotts Valley, CA
95066
(408) 438-1990

Please circle **113** on reader service card.



Quarterstaff . . .

Tired of over-hyped adventure games which promise intrigue and challenge and only supply boredom and frustration? How would you like to experience, not just play, a real adventure game, one in which digitized sound and graphics bring new meaning to the concept of realism. A world built on an AI rule-based system resulting in a dynamic environment that actually changes as you play. This is the realm of Quarterstaff where you guide a multiple character party using an advanced but easy-to-use interface that automatically maps your position as you play.

True to Life Adventuring.

Only $49.95 (includes shipping). Visa or MasterCard accepted.
CA residents add 6.5%

Simulated Environment Systems
800 S. Pacific Coast Hwy. #8-331, Redondo Beach, CA 90277
(213) 379 - 6742

©1987 S.E.S.

Please circle 126 on reader service card.

Still Searching?

MAC Version now available

What does the Bible say? And where?

We offer an integrated family of software products that allow you to search the Bible as never before.

With "THE WORD Processor" software (which includes the complete text of the KJV or NIV Bible) you can create indexes on key words, phrases, even concepts, as well as search, display or print, for just $199.95. Greek and Hebrew Transliterator products which include Strong's Concordance are also available. Or choose from a host of other exciting Biblical software products available in varying price ranges.

So if you're still searching, give us a call. We're anxious to show you how your PC can help you access your Bible as never before.

Include $3.00 for postage and handling. For Apple, IBM PC, Commodore 64, TRS80, MacIntosh, CPM 2.2, MS-DOS.

BIBLE RESEARCH SYSTEMS
2013 Wells Branch Parkway, Suite 304
Austin, Texas 78728 **(512) 251-7541**

Please circle 97 on reader service card.

QUICK CLICKS

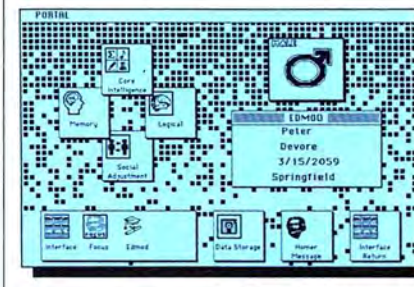
PORTAL

List Price: $49.95. Published by Activision, PO Box 7287, Mountain View, CA 94039. (415) 960-0410. Copy protected.

Portal, apparently the first novel to appear on a computer before it's been published as a book, opens a door into a bizarre and intriguing fantasy-mystery. But this turnaround on publishing spin-offs doesn't do justice to a fine piece of fiction. Its well-written prose is marred by a lack of grace in the user interface.

As a space voyager returning from a 100-year trip, you discover that all of humanity is missing. A live terminal to the world computer network reveals that the Mind Wars turned nearly everyone into "yams." But at least one person, a psychic kid with an Oedipus complex, tried to buck the establishment and find a way to prevent Man's extinction. *Portal* even manages to incorporate a love story into its plot. Your narrator is HOMER, a liberal-thinking artificial intelligence. As a raconteur algorithm he reasons, "I run, therefore I am."

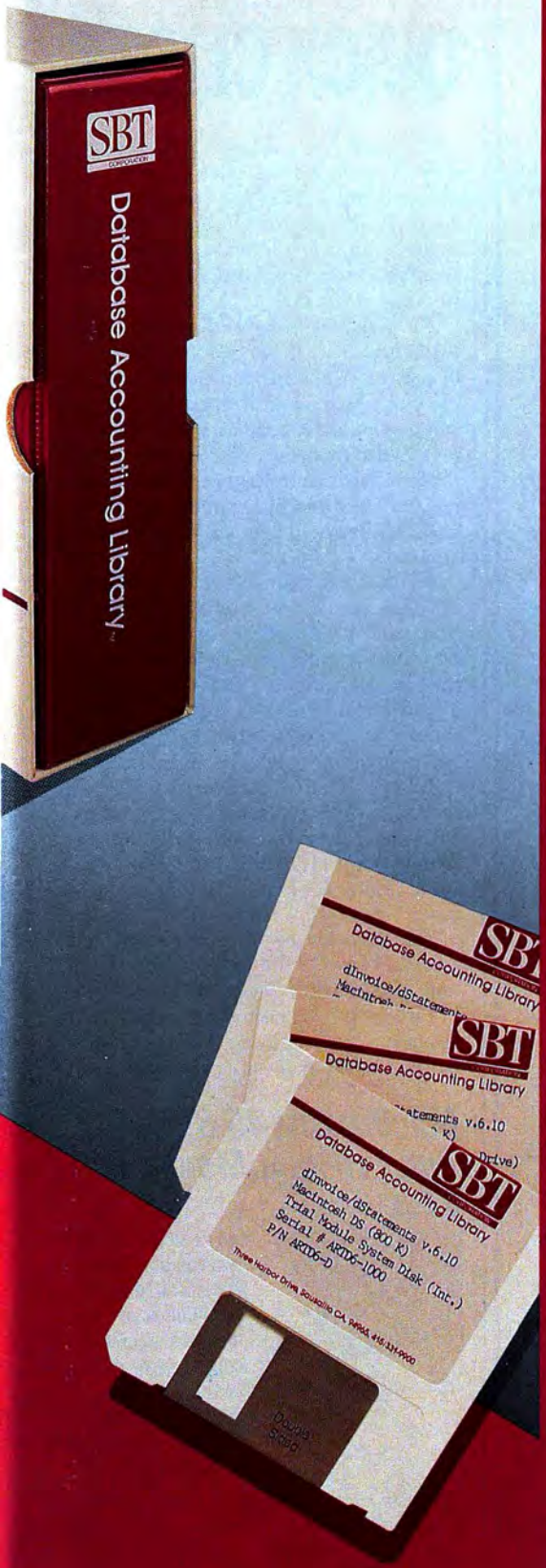
Portal is not interactive fiction, and it doesn't make any claim to be. It's a book whose pages are locked in files found in 12 data bases. There is no role-playing,



unless you want to consider yourself a librarian—not an ignoble profession, but not the stuff that fantasy spaceship commanders are made of either.

The catch to reading *Portal* is that you must open each file in a specific order before proceeding. Some of the files you access are statistics that are irrelevant to the story and others contain narrative. It's easy to get hung up and not be able to proceed. HOMER guides you a little, but otherwise you have to search through each data base looking for an open file. The beauty of branching out to different endings is non-existent.

The author, Rob Swigart, is at his best when actually telling the story, which is



If you've ever outgrown your accounting software, it wasn't ours.

Because ours can't be outgrown.

That's right. The SBT Database Accounting Library is the first business software package that works just as well whether your business is small or big. Here's why.

One.

It's modular. You can start with the modules you need today. Then add more as your needs grow. And all the modules work together.

Two.

It runs with McMax and dBMAN database management software (high-performance dBASE III work-alikes for the Apple Macintosh).* So you get all the power and flexibility of the most advanced and best selling Database Accounting Software.

Three.

You can customize our software in just hours to fit your business. No matter what size or shape your business is. Because we give you the source code (the key to changing our software) absolutely free.

The SBT Database Accounting Library. Try to outgrow it. We dare you.

Call today for our demo disk and brochure. (415) 331-9900.

THE SBT DATABASE ACCOUNTING LIBRARY.

dProfessional	Time & Billing	$395
dOrder	Sales Order Processing	$295
dInvoice	Billing/Inventory Control	$295
dStatement	Accounts Receivable	$100
dPurchase	Purchase Order	$295
dPayable	Accounts Payable	$395
dPayroll	Payroll/Labor	$395
dLedger	General Ledger/Finance	$395
dAssets	Asset/Depreciation	$295
dProject	Project/Job Accounting	$395
dBackup	Menu/Backup	$ 65

Please circle 288 on reader service card.

One Harbor Drive
Sausalito, CA 94965 (415) 331-9900
Telex 9102404708

SBT CORPORATION

dBASE III is a registered trademark of Ashton-Tate, Inc. McMax is a trademark of Nantucket, Inc.
Apple and Macintosh are registered trademarks of Apple Computer, Inc.. dBMAN is a registered trademark of VersaSoft.
Copyright 1987, SBT Corporation.

DiskEnsure™ lets you survive a system crash with the peace of mind of having a reliable backup.

Your data is in jeopardy every time you use your hard disk. Why? Because if an application presents the dreaded bomb, the power flickers, or your hardware fails, you can damage your disk directory. Over half of the HFS formatted hard disks in daily use have some directory damage. Eventually this will cause you to lose from one to all of your files. The only way to prevent data loss is to have a second (backup) copy of your files.

DiskEnsure will make you feel safe and secure. Use it as needed to make backup copies of your files to floppies or tape - even large or "invisible" files that the Finder cannot copy to a floppy. With DiskEnsure's unique graphical interface you can specify backup by volume, folder, or file and exclude specific files from the backup. Subsequent volume backups are performed incrementally.

Of course, DiskEnsure can restore backup files to the hard disk. It can completely restore the hard disk or only specific folders and files. And to further guard against loss, DiskEnsure can rejuvenate your hard disk.

Supports both MFS and HFS on a Macintosh XL, 512, 512E, Plus, SE, and II.

DiskExpress™

keeps your hard disk running at top speed.

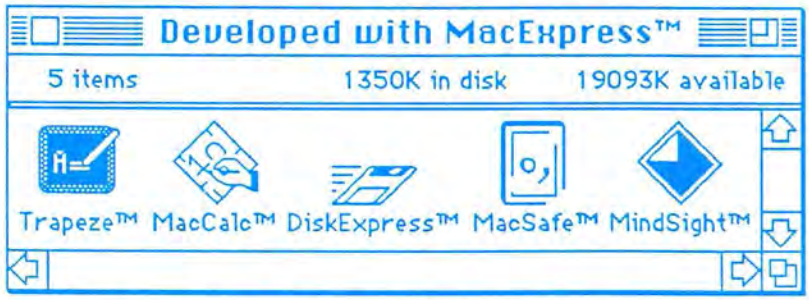
MacUser Magazine: "Just like humans, the older your disks get, the more they slow down. Computer gurus have dubbed this electronic hardening of the arteries 'disk fragmentation'. Fortunately, there's a program that can restore your disks to their youthful vigor. It's called DiskExpress. [After running DiskExpress] the resulting speed improvement was impressive."

MacWorld Magazine: "DiskExpress from ALSoft can get your files back together and make you feel good about disk I/O again."

MACazine: "DiskExpress is easy to use. No special or technical knowledge is required. I run DiskExpress ... to restore my hard disk to optimum performance. [It] is a well-designed product which should be packaged with every hard disk sold. I rate it this month's BEST BUY!"

Recommended by: SuperMac, Jasmine, AST, Peripheral Land, Peak Systems, Infosphere, Quark, Blyth Software, and many others.

MacExpress™ slashed their program development time. It can do the same for you.



MacExpress supports the 512, 512E, Plus, XL, SE and II. Versions available for MPW C, MPW Pascal, LightspeedC, Lightspeed Pascal, and TML Pascal.

Please circle 240 on reader service card.

QUICK CLICKS

suspenseful. His writing is littered with a sort of technobabble where suffixes are dropped and words joined to form Newspeak. And there is a bit of an Orwellian nightmare quality about it with the "Big Brother" Intercorp maintaining the status quo.

Portal draws on a lot of sources for its inspiration. It is an eclectic brew of Greek tragedy, sci-fi and poetry—where the word Mozart means performance art and is commonly used as an action verb. *Portal* also manages to hit on current topics—like race relations, environmental issues and machine intelligence. It's a good action story that will keep the kids' attention.

Portal doesn't open up any new windows in the use of the Mac interface. You have to Restart your Mac just to boot up the program. You move around the game clicking on icons, but with over 400 files to access, the response is too slow. And the copy protection prevents speeding things up by installing the novel on a hard disk. Most of *Portal*'s problems probably come from its translation into the Macintosh environment. At one point HOMER says, "If only we could mindlink. This would go so much faster." Agreed.

Still, *Portal* is an intriguing story, and I look forward to the sequel. In the mean time, St. Martin's Press plans to publish a hard copy version of the novel in January. You might be better off by waiting to see if a movie develops.—*BT*

MacBottom 45 SCSI And Internal Modem

$4\frac{1}{2}$

List Price: $1795; modem upgrade: $200. Manufactured by Personal Computer Peripherials Corporation, 6204 Benjamin Road, Tampa, FL 33634. (800) Mac-Butt or (813) 884-3092. Does not work with Mac II.

I got excited when I first saw the MacBottom drives because they didn't take up any additional space on my desk. The MacBottom 45 is another addition to PCPC's excellent line of hard disks. Besides being faster than the 10- and 20-megabyte drives, it's made for daisy chaining. The cable is longer so it can be set farther away or stacked. Also, the SCSI device number is easier to set because a small counter has replaced the jumper used before.

PRODUCT PHOTOS BY GARY BUSS

QUICK CLICKS

The drive comes with a full complement of utility software. *HFS Backup*, one of the best backup utilities on the market, was the first commercial backup utility and made up for the lack of backup software for Apple's HD20.

The MacBottom 45 comes with its own LaserWriter and ImageWriter spoolers. They are handy and quick, but lack some features that are standard in other commercial spoolers. Once you have spooled a document to disk, the MB *Laser Spooler* can only report on the status of the LaserWriter and the print job. You cannot change the order of the print jobs, nor can you flush the buffer on the disk if you decide to cancel printing.

The ImageWriter spooler is the same as that shipped with the MacBottom 10s and 20s. It allows you to pause and continue the print job or flush the print buffer, but you can't change the printing order.

As the name suggests, the *Eureka* desk accessory supplied with the drive helps you find files that have gotten lost somewhere in all those megabytes. It graphically shows you where a file is on the drive and provides you with information about the file: the size of the data and resource forks, the type and creator, and the date the file was created and last modified.

Floppy Copy allows you to quickly copy a floppy disk or make multiple copies of a disk. The contents of the floppy are read into a temporary buffer on the hard disk and then copied onto a second floppy. This is helpful if you have a single floppy system.

The MacBottom 45 is the first hard disk which can be purchased with a built-in modem. If your Mac travels with you, this is an innovation as noteworthy as the collapsible toothbrush. The modem fits into the upper half of the drive cabinet and is also available as an upgrade for current MacBottom owners.

I tested the modem with *MicroPhone*, *Smartcom II*, *Courier* and *FreeTerm*, and it performed well with all of them. It also responds to the standard "AT" command set. The manual lists the registers, commands and result codes for users who are not really familiar with modems, and it explains how to change the dipswitch settings.

Once again, PCPC offers a quick and reliable drive for the consumer's dollar. The only thing this drive really lacks is a fancy, padded carrying case with the MacBottom emblem sewn on the outside. How about it PCPC? When can we expect one? —*Fred Terry*

NEW

Font/DA Juggler™

Keep all of your Fonts and Desk Accessories within easy reach.

Break the 15 Desk Accessory (DA) barrier:

- Access both DAs and Fonts without having to install them in your system file.
- Can be used from both a DA and FKEY.
- Have as many as 20 DAs available from the Apple menu at one time.
- Virtually unlimited number of Font/DA sets can be accessed.
- Currently selected Font/DA set remains active as you move from one application to another. Even between system restarts!
- Extremely simple to use.
- Comes with a FREE utility to rename and renumber DAs.
- Includes over 50 public domain DAs and is available NOW!
- Works with Macintosh 512E, Plus, SE, and II.

NEW

$49.95

Dietician™

You're the best judge of what's *delicious*, let Dietician tell you what's *nutritious*!

(formerly DietMac)

Puts Mega*bites* of valuable nutrition information at you fingertips. Play nutritional "what if" by food, meal, menu, and recipe. You can:

- Examine 23 nutrient values of 778 foods, expandable to 1500 foods.
- Compose as many as 5 meals per menu, 7 menus per diet, unlimited diets.
- Search the food data base by 9 FOOD EXCHANGE GROUPS, 7 MEAL NAMES, 9 MEAL COURSES, 24 TYPES OF FOOD and LOW, MEDIUM or HIGH values of CALORIES, CARBOHYDRATE, PROTEIN, FAT, CHOLESTROL, and SODIUM.
- Print a detailed menu, with nutrient totals by food, meal, and menu.

ProLink™

copies text files to and from Apple // 3.5" ProDOS disks!

Requires a Macintosh 512 with external Apple 800K disk drive. Or 512E, Plus, SE, and Macintosh II with second drive (hard, floppy, or RAM disk).

DiskEnsure, DiskExpress, Font/DA Juggler, ProLink each	$49.95
Dietician	$94.95

Plus $3 s/h, add $2 for COD, add $10 outside USA. Texas add 6 1/4%. Sorry, no P.O.s can be accepted for these products

MacExpress	$195.00

Plus $5 s/h, add $2 for COD, add $20 outside USA. Texas add 6 1/4%

MasterCard VISA

ALSoft, Inc.
(713) 353-4090

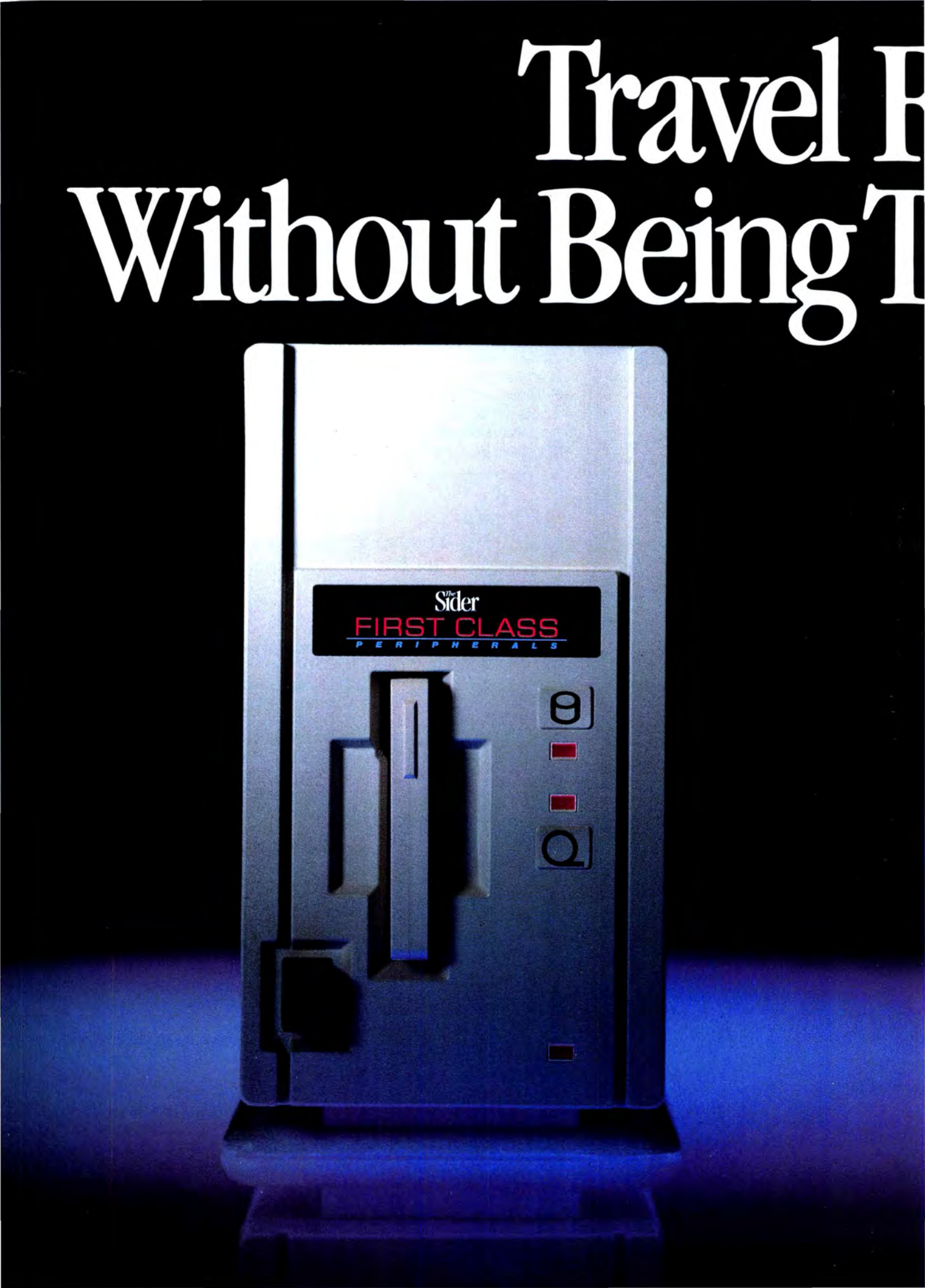
Dealer Inquiries Invited

P.O. Box 927, Spring, Tx 77383-0927

©1987 ALSoft, Inc. (All prices subject to change without notice)

Please circle 298 on reader service card.

Travel F
Without Being T



irst Class
aken For A Ride.

Introducing Our Latest Sider, Model C46. 40 Megs Primary Storage. 60 Megs Integral Tape Backup. $1995.00 Total.

First, The Problem.
Apple is telling the world these days that the power, versatility and compatibility of the new Macintoshes are going to end forever any doubts that these are first-class business machines.

But what kind of business you actually get down to has as much to do with the peripherals you attach as it does the computer itself. Take mass storage. For many companies, serious business means nothing less than 40 megabytes of primary capacity and at least an equal amount of backup — ideally in the same subsystem package.

A few packages do exist with those specifications. But the price tags are absolutely stratospheric — which for many companies anxious to get down to business can be downright catastrophic.

First Class, The Solution.
The Sider Model C46 changes all of that. Sure, you get capacity, speed, performance, reliability, backup and restore. You get a slim, smart-looking, easy-to-install unit that is compatible with the Macintosh Plus, SE and II — and the Apple II+, IIe and IIgs as well. And with our 60 meg tape (not 40 meg, like the competition), you get backup you can lock up for security and, thanks to total Sider cartridge interchangeability, you get data you can pack up and take anywhere.

But what you get that really astounds is a price tag the others can only envy. It reads $1995.

It also reads First Class Peripherals, for those of you wondering how that price could possibly be attached to this product. For years, the names "Sider" and "First Class" have been synonymous with truly affordable, zero defect mass storage among Apple II users.

Now, we intend to establish the same standard in the Macintosh world. With a family of subsystems that includes, besides the Model C46, both a 20- and 40-megabyte hard disk Sider subsystem and a Sider 60-megabyte tape backup subsystem.

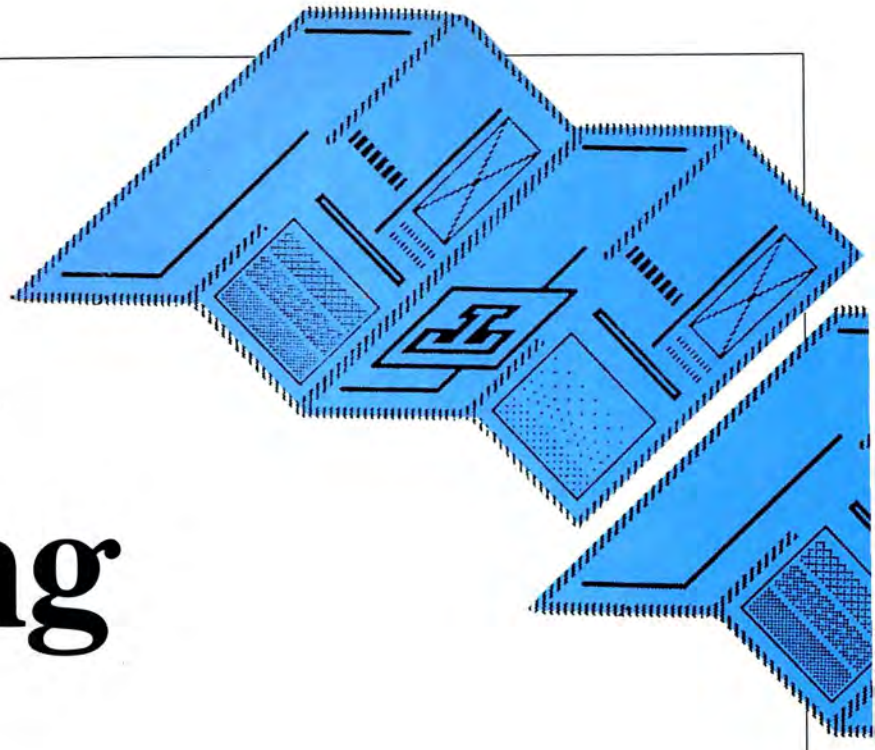
Call us toll free for the name of the First Class Peripherals dealer nearest you. And find out for yourself how easy it is to get down the price of getting down to business.

800·982·3232

FIRST CLASS
PERIPHERALS

3579 Highway 50 East, Carson City, Nevada 89701

Please circle 120 on reader service card.



Turning Over a New Leaf

PageMaker 2.0 matures and adds features. But there's still room for future growth.

BY EZRA SHAPIRO

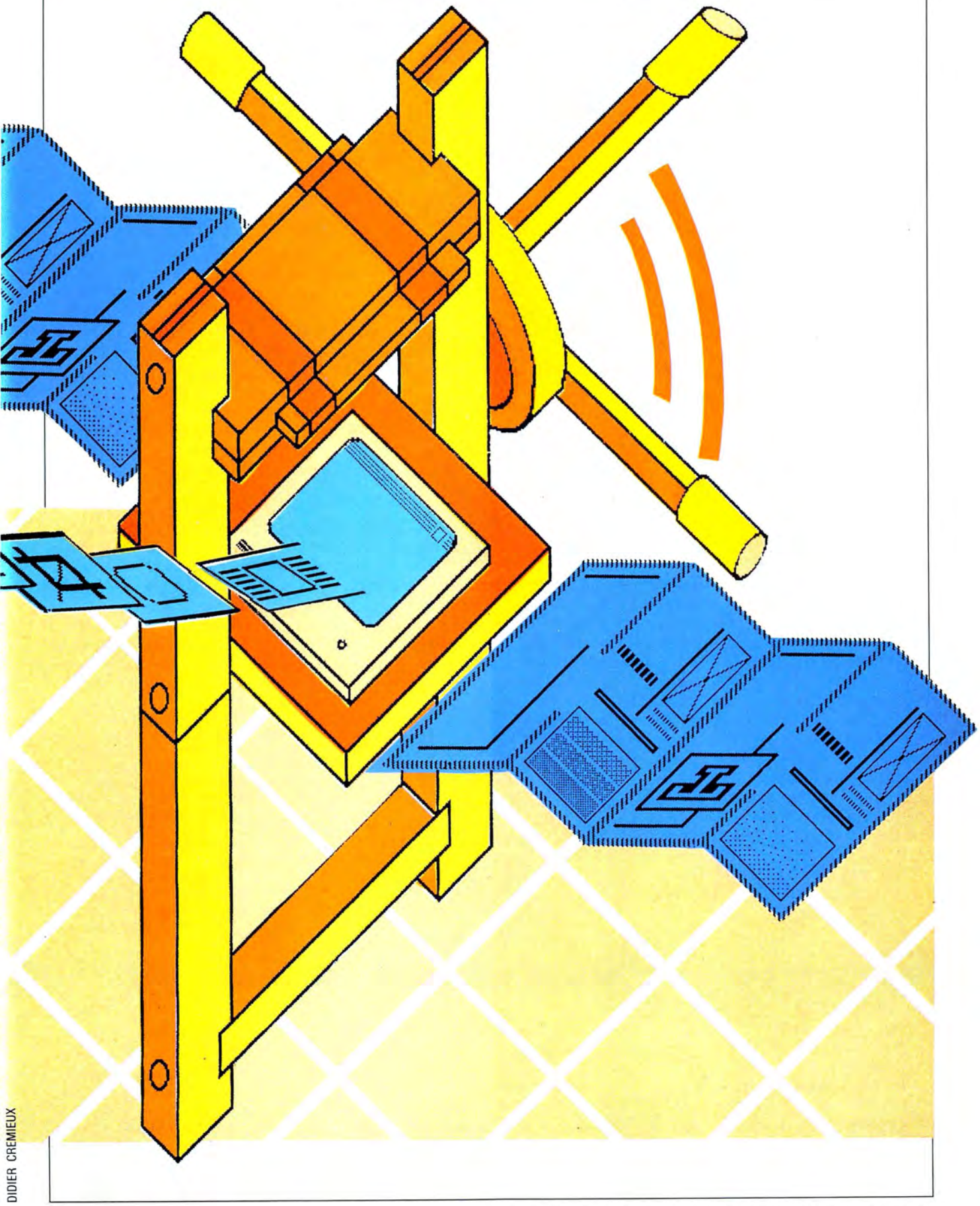
THE GOOD NEWS IS THAT *PAGEMaker* 2.0 is one terrific piece of desktop publishing software. I was hard pressed to find an element of the program that was either poorly designed or poorly executed; most of my criticisms come in the form of additional features I'd like to see incorporated into future versions.

The bad news is that *PageMaker*'s greatest strength—the amazing fidelity with which it recreates the procedures of a graphic artist's studio—is still sometimes its greatest weakness. The very metaphor that makes the program so easy to understand and use also makes it a cumbersome choice for manipulating complicated longer documents.

Overall though, *PageMaker* 2.0 is one of the slickest programs I've ever seen. It's fast, powerful, close to bug-free, and it retains all the charm and ease of use that made its ancestors, *PageMaker* versions 1.0 and 1.2, so popular. Users of those programs will have no hassles moving to 2.0; newcomers to *PageMaker* will be delighted at how easy it is to get up and running.

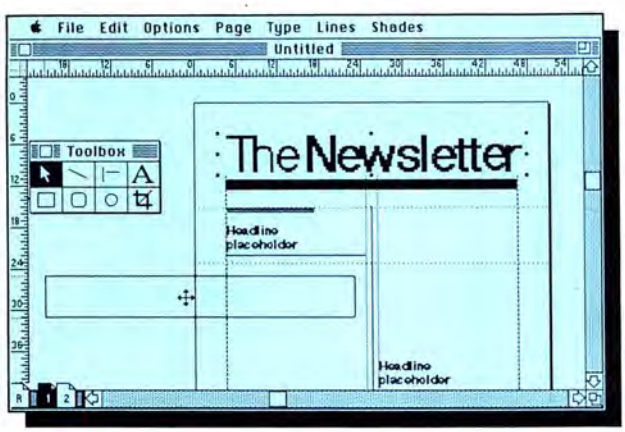
PageMaker was and is a legendary product. When it was first released, it quickly established itself as the yardstick by which all later page makeup software would be measured. The basic concept is simple and elegant. *PageMaker* gives publication designers the computerized equivalent of the manual tools used by paste-up artists—drafting table, layout boards, razor blades and rubber cement. Unlike recent competitors that try to integrate word processing and page layout into one comprehensive program, *PageMaker* is strictly organizational—a tool for consolidating text and artwork created with other programs into complete pages.

A *PageMaker* document starts out as a blank page on an empty desktop. You import text and/or graphics files, which can be "placed" in position on the page. Every object can be resized, reshaped or repositioned with a few magical passes of the mouse. If you discover that you're not satisfied with the way a particular item looks on the page, you can move it off to the desktop, which



DIDIER CREMIEUX

acts as a holding area for unused objects—there's no need to constantly load and unload objects from the Scrapbook or Clipboard. When you're satisfied with the appearance of a layout, you move on to the next page. It's quite straightforward.



The basic interface of *PageMaker* 2.0 looks exactly like *PageMaker* 1.2. Old hands with the program should have no problems making the transition. This shot shows a convenient new feature. Quickly dragging a selected block (in this case the headline) across the display moves a hollow outline of the object to the new position.

Most manipulations use one of eight cursor tools. The small tool palette can be moved around on the screen to keep it clear of your operations. A pointer tool lets you select objects and move them; a text tool is provided for selecting, entering and editing text elements; and a cropping tool allows you to trim imported graphics. The remaining five palette tools are for drawing rectangles, rounded corner rectangles, circles and ovals and straight lines (there's one tool for lines at any angle and another for lines constrained to horizontal, vertical and 45-degree angles).

To simplify the layout process, *PageMaker* lets you create both horizontal and vertical non-printing guide lines, which you can use for assistance in placing objects on the page in columns and blocks. This grid can be reused as a template, so you can build a long document with a repeating format.

You can view documents at any one of five sizes: actual, 75%, 50%, 200% and reduced to fit a full page onto the screen—whatever its dimensions. You can specify whether your view is to be of a single page or of two facing pages. Rulers along the left and top edges of the display provide measurements in your choice of units.

NEW BRANCHES

Fans of *PageMaker* 1.2 will be happy to note that 2.0 retains the feel of earlier versions. A quick glance at the screen is comfortingly familiar. It's not until you begin pulling down menus that you realize how much has been added.

One of the biggest flaws in 1.2 was the lack of automatic hyphenation; resizing columns meant rehyphenating text by hand. *PageMaker* 2.0 now sports a 110,000-word hyphenation dictionary and a user dictionary that can handle 1300 new words. The base dictionary is large enough so that during testing I found myself using the personal dictionary solely for company names.

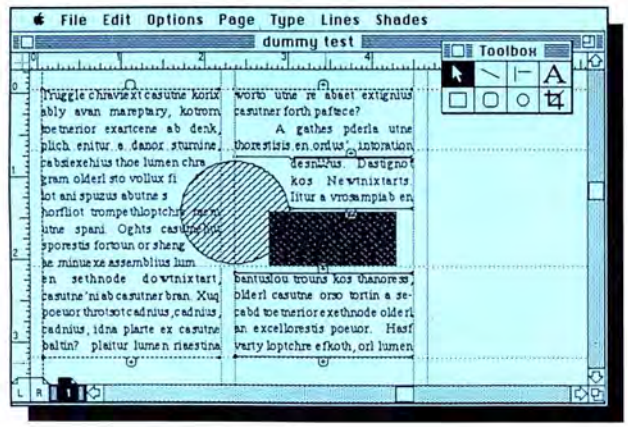
If your fonts support kerning (taking out space between certain letter pairs that normally have ugly white gaps between them) *PageMaker* 2.0 will kern automatically. You can also kern manually if you desire. *PageMaker* offers both letterspacing and variable word spacing as global options; you can easily control the "tightness" of your type.

The 16-page per publication limit is no more. *PageMaker* 2.0 handles 128-page documents, and will allow you to chain them into up-to-9999-page publications.

You can set up custom page dimensions for both smaller and larger sizes up to 17 inches by 22 inches. With dimensions less than an 8 ½ inch by 11 inch sheet, *PageMaker* adds crop marks at the corners to facilitate correct trimming. With the larger sizes, you can select tiled printout, which provides a slight overlap at the edges of each sheet so you can paste them together safely.

The window shade handles at the top and bottom of text blocks have grown little blocks at either end. Dragging one of these new side handles stretches or shrinks the width of your column.

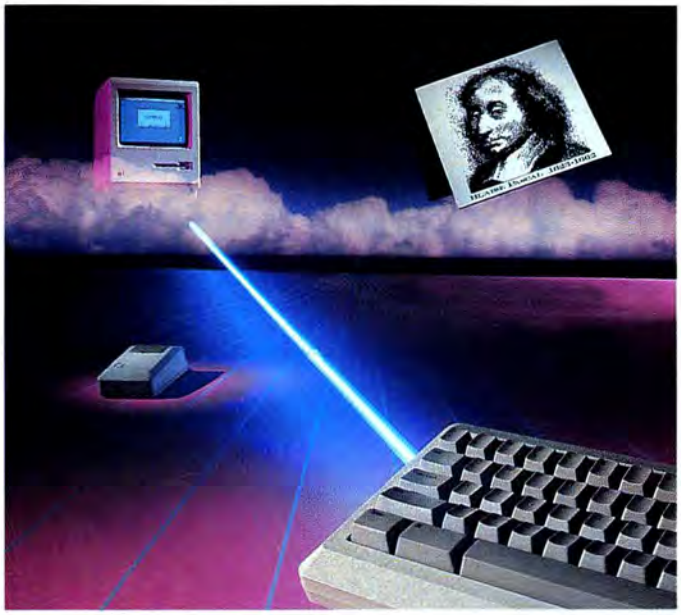
If you click on an object and slide it quickly to a new position, an outline box follows the cursor. You'll no longer have to wait as *PageMaker* redraws the object again and again as it jumps across the screen.



Flowing text around objects is still not automatic. To create the irregular text on the left, I had to insert carriage returns at the appropriate points. Text will be superimposed on an underlying object so you can see where you're going. The rectangular hole on the right required creating three text blocks to surround the object.

A "Select All" command has been added to the Edit menu. You can use it either to group select an entire page of objects or to specify an entire

Borland's new Turbo Pascal Family makes programming fast and easy



Turbo Pascal® code compiles and runs at better than a sizzling 12,000 lines per minute. Its clear, logical design makes it easy to learn and use.

Turbo Pascal is truly compatible with Inside Macintosh, which means that you're on familiar ground—that's why so many Mac users have made it their standard. Best of all, it's only $99.95!

NEW!

The Turbo Pascal Tutor is just for you!

A companion to Turbo Pascal, Turbo Pascal Tutor quickly teaches you how to program your Mac in Pascal! This interactive tutorial on disk and 700-page manual really show you how—from the basics to advanced programming on the Mac—in Turbo Pascal, MPW Pascal or any version of the language you're using.

You get . . .

- A concise history of Pascal and step-by-step concepts for the beginning programmer.
- A Programmer's Guide taking you through all the specifics you'll need from Pascal program structure to data types, records and files.
- An advanced programming section covering linked lists, stacks, sorting and searching algorithms and more.
- A full guide to using the power of the Macintosh in Pascal, from use of the visual interface to memory management and debugging.
- Source code on disk you can use in your own programs without paying royalties.

Only $69.95!

NEW!

Turbo Pascal Numerical Methods Toolbox™

Numerical analysis at your fingertips! This complete collection of state-of-the-art routines and programs solves all the most common problems in science and engineering. And you're free to include the source code in your own programs. Includes:

- Solutions to equations
- Interpolations
- Matrix operations: inversions, determinants and eigenvalues
- Differential equations
- Least squares approximations
- Fourier transforms

Only $99.95!

NEW!

Turbo Pascal Database Toolbox®

Provides you with the search and sort routines you need for your Pascal database applications. And you get Turbo Pascal routines for reading and writing data to and from Reflex® for the Mac files.

- Turbo Access locates, inserts or deletes records using B+ trees, and does it fast.
- Turbo Sort uses the Quicksort method to sort data on single items or multiple keys.
- You get source code on disk and a free sample database using the Mac interface that you can tailor to your specific needs.

Only $99.95!

> "Turbo Pascal is fast: 12,000 lines of good, compiled Pascal code in 60 seconds."
>
> *Howard Katz, MACUSER*"

All products require a Macintosh with at least 512K.

All Borland products are trademarks or registered tradmarks of Borland International, Inc. or Borland/Analytica, Inc. Other brand and product names are trademarks or registered trademarks of their respective holders. Copyright 1987 Borland International BI-1127

BORLAND INTERNATIONAL

For the dealer nearest you or to order by phone

Call (800) 255-8008

In California : (800) 742-1133.
In Canada: (800) 237-1136.

BORLAND

Please circle 9 on reader service card.

Turning Over a New Leaf

imported document—even if it has been split into multiple columns over many pages. This makes global formatting much easier.

These are just a few of the high points; every area of performance has either been improved or enhanced. Saving and printing are much faster. Keyboard shortcuts have been added for many commands, and *PageMaker* 2.0 supports both the Mac Plus cursor keys and use of the numeric keypad as a cursor pad. If you use the font files distributed with *System* 4.1, you'll find *PageMaker* gives you much truer WYSIWYG screen displays. And *PageMaker* 2.0 now imports a wider variety of file formats (including the TIFF format for scanner output and encapsulated PostScript from new laser-oriented graphics packages).

BLOWIN' IN THE WIND

I had no problems creating publications using elements from a wide range of programs: text from *Microsoft Works, Word* 1.05, *Word* 3.0, *MacWrite* and plain ASCII text downloaded from online services; *MacPaint*-style graphics from *SuperPaint* and *GraphicWorks;* encapsulated PostScript from *Adobe Illustrator*; and PICT-type art from *SuperPaint* in Draw mode, *Glue, Pro-3D* and *Excel* via the Scrapbook; and downloaded fonts from both Adobe and CasadyWare. I even created a *WordStar* file on (dare I say it?) an AT clone, sucked it into the PC version of *PageMaker,* modemed the resulting publication file over to the Mac, and pulled it into *PageMaker* 2.0—one hell of a way to convert *WordStar* for use on a Macintosh, but it worked. *PageMaker* handled everything without burping. I noticed no appreciable degradation working with multiple columns, pages with many elements or lengthy publications. Printing to a QMS PS-800 laser printer (the functional equivalent of the LaserWriter) with either the Apple driver or one provided by Aldus took no longer than I would have expected.

I encountered no bugs during my quite extensive evaluation. I have since learned from Tony Bove's and Cheryl Rhodes' *Desktop Publishing*

Getting a Head Start

PageMaker 2.0 provides you with only one solitary, forlorn tutorial on disk—not a huge surprise, considering that the program and its support files are squeezed onto two 800K disks with little room to spare. Once you've spent 15 or 20 minutes assembling the sample newsletter, you're on your own. The manual stresses planning, planning, planning, but where do you begin? What's the right way to go about designing your first piece?

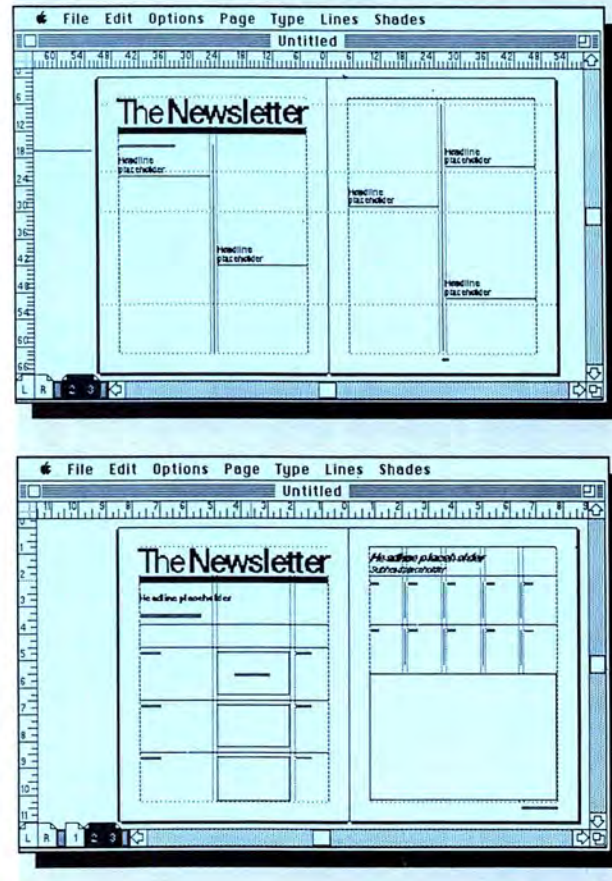
A good place to start is Aldus' *PageMaker Portfolio: Designs for Newsletters* ($79). It's a collection of template grids for 8½ x 11 inch publications, and you also get a second tutorial and an excellent manual.

With very little effort—all the dirty work of setting up the formats has been done by Aldus—you can modify one of the layouts and pour your periodical into the mold.

Since Aldus loads its advertising and promotional materials with scads of extravagant layouts done by graphic artists using *PageMaker,* I was concerned that *Portfolio* would contain a bunch of esoteric, over-designed newsletters impractical for the novice user. I needn't have worried; Aldus did it right. The templates are conservative, but stylish—you won't be embarrassed to build a publication from any of them.

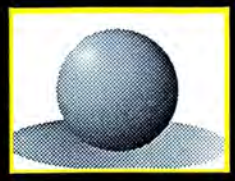
You get seven layout models, each of which has three 2-page variations, so you can study (or borrow from) 42 individual page designs. Aldus has positioned column guides, blocked in headlines with dummy type and even created measuring "tools" for you (little boxes that can be slid over type areas to check vertical spacing). The oversize 114-page manual is well-written and contains illustrations of all the templates in finished form, plus supporting examples of good and bad design technique. Much of the material is reminiscent of *The Aldus Guide to Basic Design,* but somehow the large pages and the knowledge that you can work with the templates gives it a much more comfortable feel.

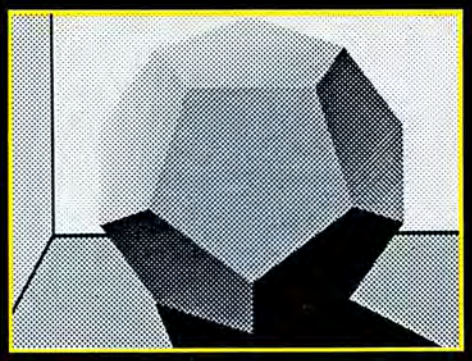
I wouldn't recommend the *Portfolio* to experienced layout artists or *PageMaker* users, but it's certainly a big help if you're new to the process or if you need to save some time.



The *PageMaker* screen at the top shows the "easy" version of the simplest newsletter format in the *PageMaker Portfolio*. The bottom screen is one of the most complex templates you receive.

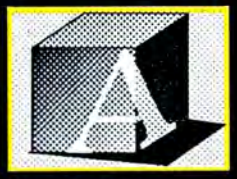
ACHIEVE THE ULTIMATE.





You've probably felt the frustration. All of that graphic power just waiting to be tapped, without software to unleash the potential. Frustrate no longer – Cricket Draw is here.

cricket DRAW



Runs in color on the Mac II!

Cricket Draw is an object-oriented drawing program that brings a whole new dimension to the WYSIWYG environment.

WYSIWYG is great but the end result is limited by the Mac's display resolution (approximately 5,000 dots per square inch). Cricket Draw, through the magic of PostScript,™ lets you take full advantage of the LaserWriter's superior resolution of 90,000 dots per square inch. The final product is sensational artwork that will bring a new level of professionalism to your work. With Cricket Draw **WYGIBTWYS** (What You Get Is Better Than What You See).

Unrestricted Creativity. Cricket Draw liberates your creativity by providing an unprecedented range of tools, like tilting and free rotation of any object. You can shade with a gray scale (0-100%), create shadows, fountains (graded tints), starbursts, grates, and smoothed curves. And that's just the beginning.

Precisely set type then add any of a number of special effects. Place type on any arbitrary path, rotate, tilt, shade, shadow – the possibilities are limitless.

Achieve Your Ultimate. Settle for nothing less than your ultimate. It's within your grasp with Cricket Draw.

Requires Macintosh Plus or New ROMS

Please circle 132 on reader service card.

cricket software *Anything Less Isn't Quite Cricket*

30 Valley Stream Parkway
Great Valley Corporate Center
Malvern, PA 19355
(215) 251-9890 1-800-345-8112

Macintosh is a trademark of Apple Computer Inc.
LaserWriter is a trademark of Apple Computer Inc.
PostScript is a trademark of ADOBE Systems, Inc.

Turning Over a New Leaf

newsletter that *PageMaker* 2.0 has some problems driving a Linotronic 1270 dots-per-inch commercial page composition system, but that's not a problem the average Mac user is likely to encounter. I've also seen reports on conferencing systems of a bug in the way *MacDraw* handles text that causes problems when files are imported into *PageMaker*, but Aldus is working on a fix and a new version of *MacDraw* is due out shortly.

My experience with *PageMaker* 2.0 was notably free of hassles, but one aspect of the import/export process annoyed me. *PageMaker* accepts files from *MacWrite*, *Works*, both versions of *Word*, *WriteNow* and as plain unformatted text, but only exports text to *Word* 3.0 or as ASCII. If you make extensive changes to a document while in *PageMaker*, you either have to live there forever or reformat the thing when you pull it into your word processor of choice. How come? A call to Aldus Tech support got me some answers, but I still wasn't satisfied. It seems that Aldus holds the vendors of word processors responsible for designing installable export filters. T/Maker ships its filter with *WriteNow*, and Microsoft has only provided a filter for *Word* 3.0. I use *Works* for most of my writing, and I know a lot of folks who use *MacWrite* or *Word* 1.05—for the moment we're out of luck.

SEEDS FOR THE FUTURE

This is basically a list of what's missing. The feature I'd most like to see in the next release of *PageMaker* is a search-and-replace facility, preferably one that accepts character attributes as well as simple text strings. This is an essential editing function and one that's often needed in creating a publication. I'd hate to have to exit to a word processor to do a last-minute replacement throughout a book-length manuscript and then have to reload the document into *PageMaker*.

Likewise, there's no convenient way to generate an index or a table of contents for a *PageMaker* publication other than retreating to a word processor with those capabilities and manually breaking pages at the same points they occur in the final *PageMaker* layout.

I'd like some way to tag similar objects—like subheads or chapter titles—that repeat throughout a long publication, so I could change the format in one fell swoop rather than having to find each one and select it by hand. Group select only partially solves the problem; it's too easy to miss an occurrence or two in a lengthy manuscript. Once again, the situation can be handled with a word processor that employs style sheets, but this is, after all, a design operation and I'd like to be able to solve any problems within the design environment.

This leads me to my biggest doubt about *PageMaker*. The program is wonderful for handling shorter publications—newsletters, pamphlets and the like. The amount of time you spend tweaking individual items doesn't cost too much effort and is barely noticeable. When you start looking at big projects, the adherence to the paste-up metaphor means you'll be taking a lot of time on hand operations. Even placing the text of a long manuscript requires that you click the mouse at the top and the bottom of every page to accomplish the continuation. If you plan poorly, and don't use your word processor's formatting tools to the fullest extent possible, fixing repeating formats in *PageMaker* can turn into a nightmare.

SAFETY NETS

PageMaker 2.0 is superbly documented. Gone are the days when all you received with the program was a single, slim spiral-bound booklet. Aldus now sends along a fat 314-page *User Manual*, a 134-page *Reference Manual*, a quick reference card, and a small pamphlet on installation. Each is clearly written and sensibly organized, and the two manuals have decent indices (though I wonder how they were produced, as the books were laid out with *PageMaker*). I was delighted to find that I had to wade through little of the redundancy that often characterizes the documents that come with other software packages. That's not to say that there's anything missing; the writing is simply clean and tight.

The *User Manual* opens with a brief tutorial (you build a simple publication from graphic and text elements provided on disk), then moves neatly through the operation of the program. The *Reference Manual* contains the sort of information you usually find in appendices—short descriptions of all menus and commands, details on importing and exporting various file formats, printer considerations, troubleshooting and suchlike.

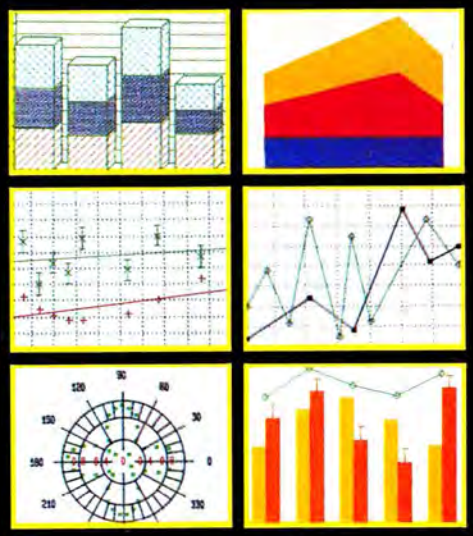
If that isn't enough, returning your warranty registration card gets you a copy of Aldus' *Guide to Basic Design* and a subscription to a bimonthly newsletter called *The Desktop Publisher*. The *Guide to Basic Design* is a 68-page paperback that purports to teach the fundamentals of graphics; it's weaker than the two manuals, but copious examples of both good and bad layouts do provide a starting point for the novice designer. The Aldus newsletter is about half useful tips and information and half propaganda, but you at least get the feeling that Aldus cares about your continuing welfare.

Registered users also receive 45 days of telephone support, starting with the first call (*not* the date of purchase). If you need more phone help, Aldus will sell you five more hours of assistance via an 800 number, discount prices on upgrades and new products and another newsletter—a quarterly called *The Aldus File*. This extended plan costs $75 a year. There are also corporate support programs for big spenders.

During the course of the review period, I called Aldus Technical Support several times with rather obscure questions. I always got through, and the people with whom I spoke were invariably concerned and courteous. Twice, when my contact didn't have answers immediately at hand, he or she took my phone number and called back a few hours later with solid information. That was a pleasant surprise.

The only area of user support that disappointed me was *PageMaker*'s on-line help arrangement. Aldus is the first major software vendor to

ACHIEVE THE ULTIMATE.



Your data is everything. It represents the culmination of all of your efforts. . .your accomplishments. So when it comes to turning your data into graphic presentations, you can't afford to settle. You need the power to achieve the ultimate. You need Cricket Graph.

cricket GRAPH

Runs in color on the MAC II!

Only Cricket Graph gives you the abiliity to transform your data into brilliant color presentations. Choose from 12 of the most popular graphs and charts. Plot 2000 data points per series. Import data in many popular formats. Then enhance your graphs with text and a full range of patterns, symbols, and colors. Even add a three dimensional look. When completed, you can print your work on any of the popular Mac compatible printers.

It's elegance defined - powerful, yet easy. No wonder Cricket Graph was voted "Best Business Graphics Package of 1986" by the Editors of MacUser.

Don't allow the limitations of your software to prevent you from achieving the ultimate. With Cricket Graph, your potential is limitless. Only $195 at dealers everywhere.

Requires a 512K Enhanced Macintosh or a Macintosh Plus

Please circle 134 on reader service card.

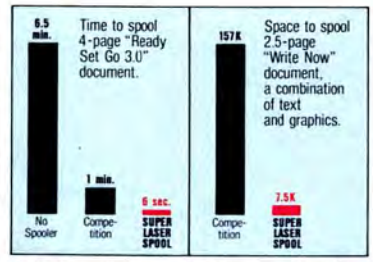
cricket software *Anything Less Isn't Quite Cricket*

30 Valley Stream Parkway
Great Valley Corporate Center
Malvern, PA 19355
(215) 251-9890 1-800-345-8112

Macintosh is a trademark of Apple Computer Inc.

BLINDINGLY FAST. By sending your print files to the background and returning control of your Mac to you, SuperLaserSpool lets you work and print at the same time. And it does this *5 to 40 times faster* than its nearest competitor.

SuperLaserSpool gets you back to work fast. You never wait for the printer, no matter how many documents you have queued up or even if the network is busy. SuperLaserSpool automatically manages the entire printing process while you work.



Look how much faster SuperLaserSpool will give your Mac back compared to its competition.

SuperLaserSpool's files are so small, you don't have to worry about running out of disk space.

WORKS WITH ANY APPLE® PRINTER. SuperLaserSpool can print to the LaserWriter and ImageWriter™ (either direct-connect or AppleTalk™-connected).

INCREDIBLY COMPACT. Other spoolers require so much storage space that a hard disk is essential. Not so with SuperLaserSpool. You can use it with floppy-disk systems because its files are so compact.

DOWNLOADED FONTS. Unlike most of its competitors, SuperLaserSpool can handle files that have multiple downloaded fonts.

EASY TO USE. With SuperLaserSpool, you can view all the jobs in the print queue, change their priorities, delete jobs, receive on-screen help, and check on network activity. Your spool files are always safe, even if the system crashes.

SuperLaserSpool works with almost all Macintosh applications. You can even leave and enter different programs without disrupting the printing of documents.

And it's completely invisible: You can launch it and forget it's even there.

- **SINGLE-USER: $149.95**
- **MULTI-USER: $395.00**

Get SuperLaserSpool at your local SuperMac dealer today, or order direct.

SUPERMAC SOFTWARE

950 N. Rengstorff, Mountain View, CA 94043
(415) 964-8884

Macintosh is a trademark licensed to Apple Computer, Inc. by McIntosh Laboratory, Inc.
LaserWriter, ImageWriter and AppleTalk are trademarks of Apple Computer, Inc. © 1986 SuperMac Software.

Turning Over a New Leaf

use *Guidance,* a desk accessory version of *Guide,* the hypertext program for the Mac, for this purpose. *Guidance* is supposedly engineered specifically for software help systems, and I was expecting great things from it.

In brief, the *Guide* family of software is constructed around the notion of layered information. When you slide the cursor over the "hot" regions of a *Guide* document, the cursor changes shape to indicate hidden layers of text or graphics. Clicking the mouse reveals the new data; clicking it again either moves you to another hidden layer or drops you back at your starting point. I was fascinated with the possibility of using sophisticated branching techniques to jump around a help system without the constraining rigidity of a menu or an outline or a table of contents.

With big projects, the adherence to the paste-up metaphor means you'll be taking a lot of time on hand operations.

In practice, *Guidance* seems to be merely a castrated subset of *Guide;* it's really just *Guide* without the ability to create or modify documents. I say this because some annoying traces of *Guide*'s editing abilities were not removed as cleanly as they should have been. For example, even though the cursor changes shape to show the spots where you click to see more data, most of the time it appears as an I-beam editing cursor; you can even click it and get a blinking insertion point in the middle of a help screen. You can't insert anything, of course, but it looks like you should be able to. Disconcerting.

I found myself frequently sliding the cursor around the help screens to

Sequoia mb

Better Business Bureau

Orders: (800) 648-7171
Customer Service: (818) 793-7858

SOFTWARE

Ann Arbor Softworks
FullWrite Professional $177.00

Blyth Software
Omnis Three Plus 280.00

Casady Software
Fluent Fonts 29.00
Fluent Laser Fonts 48.00

Chang Labs
Rags to Riches—
AP, AR, GL 120.00
Business 3-Pak (AP, AR, GL) 290.00
C.A.T. Call

Consulair
Mac C/Mac C Toolkit 215.00

Cricket Software
Cricket Draw 170.00
Cricket Graph 120.00
Statworks 75.00

DataViz
MacLink Plus 134.00

Forethought
PowerPoint Call

Image Club Graphics
Eight Set #1, #2, #3, #4 Call

Letraset
Ready, Set, Go! three Call

Microsoft
Excel 225.00
Flight Simulator 32.00
Word 3.0 235.00
Works 185.00

Odesta
Double Helix 275.00
Double Helix II Call

Silicon Beach Software
Dark Castle 28.00
SuperPaint 55.00

SuperMac Software
SuperSpool 35.00
SuperLaserSpool 95.00

Think Technologies
Lightspeed C 125.00
Lightspeed Pascal 87.00

HARDWARE

DISK DRIVES/TAPE BACKUP

AST Research
AST-20D (20mb SCSI Hard Disk) Call
AST-2000 (20mb SCSI HD/20mb TB) 1760.00

Ehman Engineering
800K External Disk Drive 195.00

Iomega
Bernoulli Box
10mb SCSI Drive 1060.00
20mb SCSI Drive 1195.00

Relax Technology
MacMate 20 (20mb SCSI Hard Disk) Call
H20P (20mb SCSI Hard Disk) 675.00
H20/20P 1375.00

MODEMS

Anchor Automation
Signalman Express 1200 210.00
Signalman Lightning 2400 310.00

Datatronics
Challenger 1200E 155.00
Discovery 2400E 235.00

Micro Connectors (Cables)
Macintosh to Hayes 8.00
Macintosh Plus, SE, II to Hayes 10.00

PRINT BUFFERS

Ergotron
Mouse Cleaner 360° 14.00
MacBuffer 512K 325.00
MacBuffer 1mb 425.00
MacBuffer LW 1mb Call

SURGE PROTECTORS

PTI
DataShield S85 55.00
DataShield S100 65.00

DISKETTES

Cenna Technology
3½" DS/DD (Box of 10) 20.00

Sony
3½" DS/DD (Box of 10) 17.50

SOFTWARE RENTALS
Evaluate software under our rental program. Call for prices.

Sequoia mb
P.O. Box 2526
Pasadena, California 91102

Prices and availability subject to change
COD's accepted

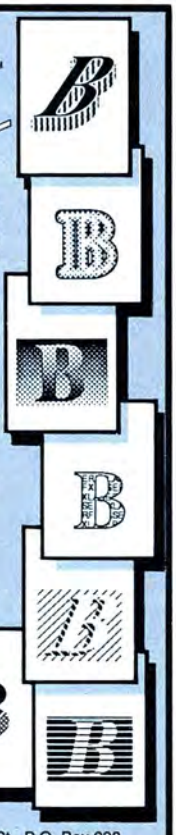
HOURS (PST)
Mon-Fri: 6am-9pm
Sat-Sun: 9am-6pm

Please circle 297 on reader service card.

Unleash the Full Power of your PostScript™ Laser Printer!

NEXT GENERATION
LASER Fx™
DESKTOP PUBLISHING UTILITY

ROTATE
SKEW - SHADE
SHADOW - OUTLINE!



- Shown are just 7 of the 30 effects available using Times font. There are millions of options available for each PostScript font.
- Not just another new font, but a whole new concept.
- Save files in Encapsulated PostScript format and others.
- Easy integration into Quark XPress™, PageMaker 2.0™, RSG!3™, Microsoft Word 3.0™ and most other popular desktop publishing packages.
- Allows user to read PICT or paint files, add special effects, and print them.
- No programming knowledge necessary.
- Special introductory price, only $195.
- For Macintosh 512E™, Plus™, SE™ and Mac II™.
- Available soon for Apple IIGS™, Atari ST™, and IBM™.

USEFUL TOOL FOR THE AMATEUR

INDISPENSABLE TOOL FOR THE PROFESSIONAL

Ask for *LASER Fx* at your local computer dealer ...or, call for nearest location.

POSTCRAFT INTERNATIONAL INC.

USA - 9420 Reseda Blvd.
Suite 476, Northridge, CA 91324
(818) 718-1598

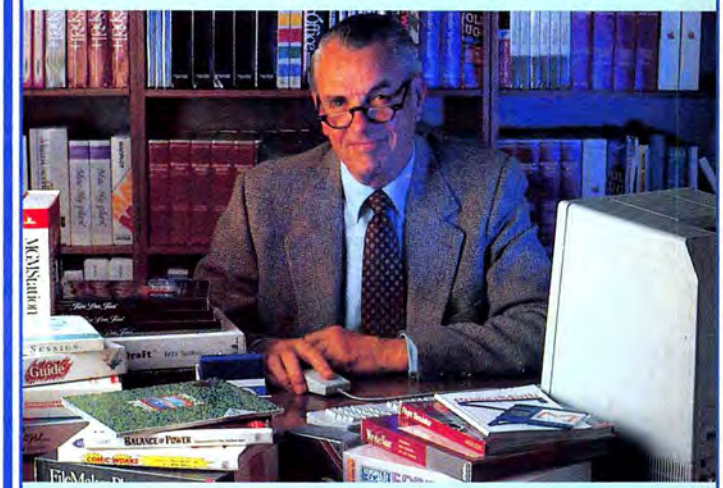
CANADA - 3 King St., P.O. Box 938
Suite 127, St. Catharines, Ontario
Canada L2R 6Z4 / (416) 641-0768

Please circle 27 on reader service card.

FREE $20 LIFETIME MEMBERSHIP

SOFTWARE LIBRARY

It's Like Having An UNCLE In The SOFTWARE Business!



Software is expensive. So why take chances? Choose from our vast Mac Library and TRY IT FIRST. Join our thousands of satisfied customers . . . just call us and tell us what you want. We'll treat you like family.

SOFTWARE FOR RENT

Over 800 Titles Available Including:

Aztec C68K-c Compiler **87.32**
BPI General Accounting . . . **32.38**
Chessmaster 2000 . . . . . **8.99**
Cricket Graph **29.25**
Dow Jones Straight Talk . . . **12.82**
Fonts for Headlines **10.22**
In-House Accountant **20.33**
Jazz **89.75**
KidsTime **8.99**
Leather Goddesses **8.99**
MacDraft **35.50**
MacMemories Series **51.00**
MacMoney **12.18**
Mac3D **33.62**
Microsoft (complete line) . . . **Call!**
MultiUser Helix **95.50**
myDiskLabeler **8.99**
PowerMath 2.0 . . . . . **13.79**
Profit Stalker II **39.60**
Ready,Set,Go! 3.0 . . . . . **51.25**
Spellswell **9.89**
Sports Problems I **8.99**
StatView 512+ **47.98**
Studio Session **13.52**
SuperPaint **13.07**
SuperSpool **8.99**
TopDesk **8.99**
VideoWorks **8.99**
100's More . . . Just Call & Ask!

SUPER SALE

Rodime 20MB SCSI Drive . . . **719.**
Panasonic/Mac Printer . . . . . **263.**
Sony Disks SS/**1.05** DS/**1.58**
Ribbons/**2.95** Multicolor/**10.95**
PowerMath 2.0 . . . . . **63.44**
MacOpener™ (tool) **14.36**
Volksmodem 1200 . . . . . **129.72**

TRY IT FIRST

RENTAL APPLIES TO PURCHASE

Orders Only
1-800-847-5775

Customer Service or In Texas
(713) 529-1100

MasterCard VISA

SOFTWARE LIBRARY
P.O. Box 980305 • Houston, TX 77098

IBM Library Coming Soon!

Software for Pennies!

EDUCOMP's got the hottest Public Domain/Shareware software for less!

The Best of EDUCOMP!

5-disk sets packed with programs for business, education, desktop publishing, entertainment, & more!

- ☐ Vol. 1, with: Amortize, Home Inventory, Talking Moose, Backgammon, Megaroids, Fonts, RamDisk, Switcher, & more! (5 Disks) ... $30
- ☐ Vol. 2, with: PrintPreview, BeepINIT, Layout, Pinball, FKEY Manager, Dot-to-Dot, Beverly Hills Font & more! (5 Disks) ... $30
- ☐ Vol. 3, with: BlackJack, MockWrite, Phone Book, Fonts, AutoBlack, BackDrop, Oasis, Air Traffic Control, Lunar Lander, Clip Art Sampler & more! (5 Disks) ... $30
- ☐ "DS" - Five 800K disks! CheckBook, Biorhythm, NewScrap, Billiards, Eraser, Big Screen, ResEdit, Fonts, ClipArt ... $45

FONTS
- ☐ 261-**BeverlyHills** ultra-high quality ... $8.50
- ☐ 230-**Int'l Fonts**-101 foreign lang's ... 8.50

CLIP ART
- ☐ 246-**Shadowettes** silhouette clips ... 8.50
- ☐ 343-**Portraits** of famous people ... 8.50
- ☐ 369-371 **NFL Posters** 3 disks ... 20.00

DESK ACCESSORIES
- ☐ 275-**TimeLog** track your Mac use ... 8.50
- ☐ B31-**Best of DAs**-BlackJack, PhoneBook, DiskTop, SuperRuler ... 8.50
- ☐ B12-**Best of DAs**-Talking Moose, Artisto, ScreenSaver, NewScrap ... 8.50

BUSINESS
- ☐ 293-**Personal Finance** for Excel ... 8.50
- ☐ 294-**Business Analysis** for Excel ... 8.50
- ☐ 358-**IdeaLiner** outline processor ... 8.50

DESKTOP PUBLISHING
- ☐ 289-**PageMaker Templates** for business cards, envelopes, labels, etc. ... 8.50
- ☐ 363-**Font Editor** with instructions ... 8.50

EDUCATION
- ☐ 267-**GraphToolz** plot any function ... 8.50
- ☐ 359-**Kidding Around** fun crafts & activities for kids, "book on disk" ... 8.50
- ☐ 148-**EarthPlot** draws the earth from any angle and altitude in 3D ... 8.50

GAMES
- ☐ 318-**Pinball** 18 different machines ... 8.50
- ☐ 316-**Dungeon of Doom** fantasy game ... 8.50
- ☐ 321-**Blackjack & Slot Machine** ... 8.50

PERSONAL
- ☐ 259-**Biorhythm & StarChart** ... 8.50
- ☐ 415-**MacRoots** geneology program ... 8.50

UTILITIES
- ☐ 78-**Resource Editor** customize Mac ... 8.50
- ☐ 301-**AutoBlack, PrintPreview** ... 8.50

☐ Please send me your FREE 128-page catalog!

Enclosed $_____ by ☐ Check ☐ VISA ☐ MC

Card No. _____ Exp. _____

Name _____

Address _____

City _____ State _____ Zip _____

Add $4 ($10 foreign) for shipping & handling. CA orders add 6% tax.

EDUCOMP
742 Genevieve, Ste. D-1
Solana Beach, CA 92075

VISA MasterCard

CALL NOW!
800-843-9497
in CA 800-654-5181

Please circle 119 on reader service card.

CompuCover

COVER YOUR INVESTMENT

Macintosh (2 piece)	12.95
Macintosh Plus (2 piece)	13.95
Image Writer I	11.95
Image Writer II	12.95
External Drive	5.95
Laser Writer	14.95
Macintosh KeySkin™	24.95
Leather Carrying Case	Call

Citizen - Epson - Okidata - Panasonic
Over 3000 covers to choose from
You name it - We got it!

Anti-Static - different colors

ORDER LINE
1-800-874-6391

MasterCard

FLORIDA ORDER LINE
1-800-342-9008

VISA

Dealer Inquiries Invited

CompuCover
P.O. Box 310 Dept. K
Mary Esther, FL 32569

Customer Service
(904) 243-5793
Telex 469783

Please circle 92 on reader service card.

PROTECT YOUR COPIES OF MacUser

Make your collection of MacUser a handsome addition to your office or home—and protect them for easy reference!

MacUser Magazine Binders and Cases are made of durable luxury-look leatherette over quality binder board. Custom designed for MacUser, every order receives FREE gold transfer foil to personalize dates and volume numbers.

For Fast Service Call Toll Free, 1-800-972-5858

Magazine Binders

Hold your issues on individual snap-on rods.
$9.95 each. 3 for $27.95.
6 for $52.95.

Open Back Cases

Store your copies for individual reference.
$7.95 each. 3 for $21.95.
6 for $39.95.

MacUser
c/o Jesse Jones Industries
499 East Erie Avenue—Philadelphia, PA 19134

Please send me: Quantity_____ ☐ Binders ☐ Cases

Payment by check or money order enclosed for $_____.*

Add $1 per case/binder for postage and handling. (Outside USA, add $2.50 per case/binder ordered, US Currency only.)

Charge my: ☐ AmEx ☐ Visa ☐ MC (minimum order $15).

Card No._____ Exp. Date_____

Name_____

Street Address_____

Sorry we cannot ship to P.O. Boxes. Thank you.

City_____ State_____ Zip_____

*PA residents add 6% sales tax.

Turning Over a New Leaf

see where the hot spots were. This tendency didn't disappear until about the same time I stopped using the help system. Others may find it easier to adjust to this noble experiment, but I spent far too much time figuring out the system than actually getting help. The information is all there, and *Guidance* is a much better idea than Aldus' earlier practice of shipping help files as individual *PageMaker* publications that had to be opened one by one. However, on-line assistance should require less brainpower. How about true context-sensitivity, keyed to operations?

FINAL THOUGHTS

In spite of some niggling inadequacies, *PageMaker* will once again be the target to shoot at in its product category. It's fast, flexible and inviting. At the moment, *PageMaker* 2.0 is truer to its vision than any other page layout program on the market, and it excels at what it claims to do. Is it the right program for you? That depends on whether the paste-up metaphor is suited to your working style. If it is, *PageMaker* 2.0 is hard to beat.

EZRA SHAPIRO HAS BEEN WRITING ABOUT COMPUTERS FOR THE PAST 5 YEARS. IN HIS PREVIOUS LIFE, HE WORKED AS A MAGAZINE ART DIRECTOR AND PRODUCTION MANAGER, AND WAS AN OFFICER OF THE SOCIETY OF PUBLICATION DESIGNERS.

MACUSER RATING

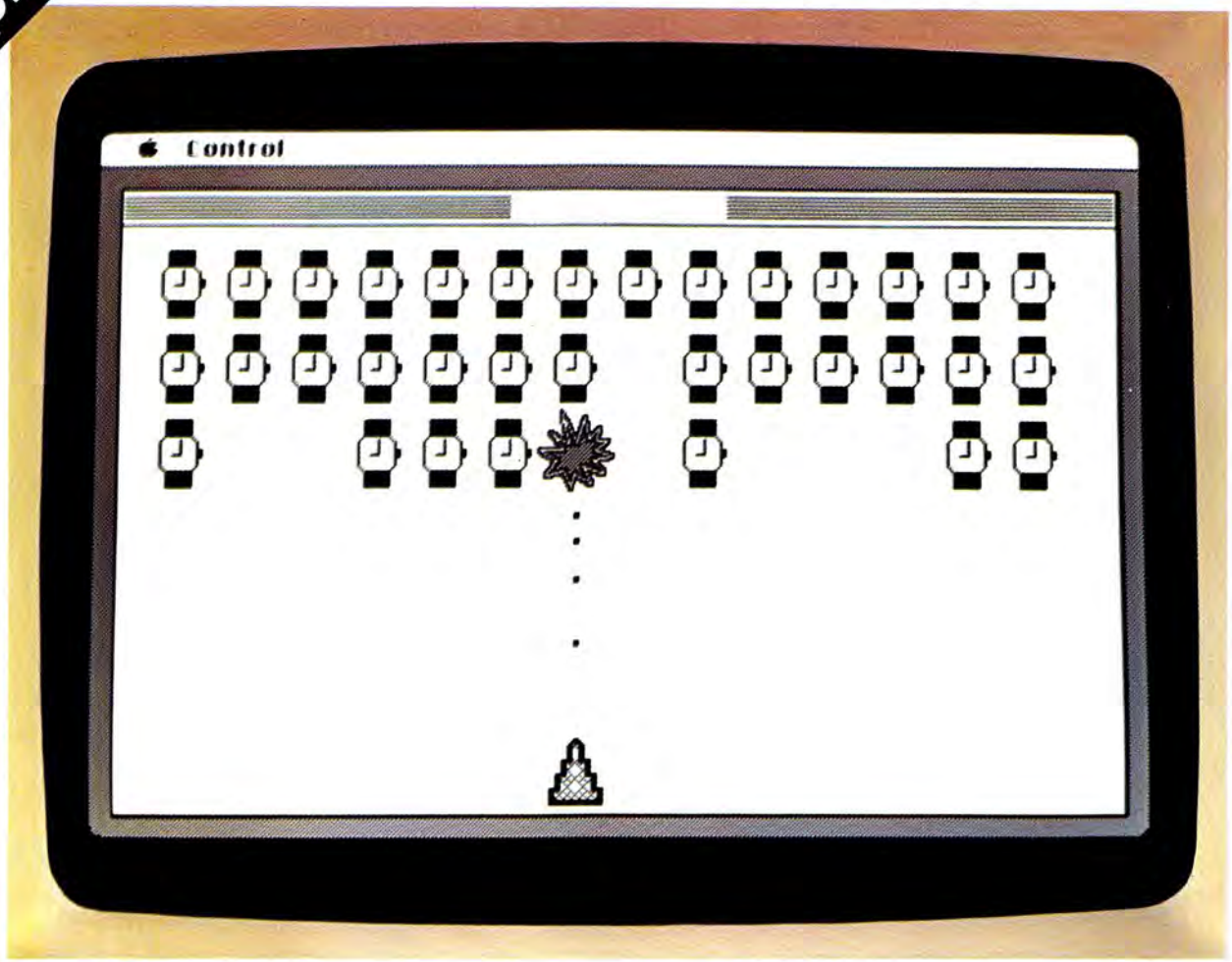
PageMaker 2.0 ★★★★½

Follows Mac Interface	■■■■■
Printed Documentation	■■■■■
On-Screen Help	■■■□□
Performance	■■■■□
Support	■■■■■
Consumer Value	■■■■□

Comments: A remarkably consistent and flexible implementation of the paste-up metaphor for page layout, on which the product was based. **Best Feature:** Well-designed interface is never threatening or confusing. **Worst Feature:** Lack of automation for repetitive tasks makes longer projects tedious; limited export capability. **List Price:** $495. Published by Aldus Corporation, 411 First Avenue South, Seattle, WA 98104. (206) 622-5500. Version 2.0 reviewed. Not copy protected.

Now compatible with Appleshare™

Beat the clock.



On your Macintosh Plus, it's the one thing that comes between you and a finished job.

You can win, though. With the Rodime 20 Plus™ hard disk.

Data retrieval is eight times faster on the Rodime 20 Plus and its SCSI connection than with the Mac Plus's regular diskette drive. And six times faster than with any hard disk that uses the floppy port.

So you'll be doing spreadsheet recalculations and database sorts in seconds.

And, of course, there's storage. 20 megabytes – that's 25 floppy disks' worth – on the 20 Plus. And over twice as much on the Rodime 45 Plus™ All in a package that fits right under your Mac Plus.

Best of all, it's made by Rodime. The acknowledged leader in hard disk technology and reliability.

There is more. Like software that makes it easy to back up an entire disk, or any documents, onto floppies. And the one-year limited warranty.

But those things will seem like extras after you see the speed.

Because the Rodime 20 Plus lets you work instead of wait.

And that beats all.

RODIME SYSTEMS

RODIME, INC. PERIPHERAL SYSTEMS DIVISION • 29525 CHAGRIN BLVD. • PEPPER PIKE, OH 44122 • 216-765-8414

Now available through SOFTSEL, McKenzie Brown Canada, Inc. Quality Components and Schweber Electronics.

ComputerCraft, The Computer Factory ComputerLand Canada, The Computer Shoppe, Heath-Zenith Electronics Stores, Wabash Computer Systems and Inacomp Computer Centers.

Please circle 10 on reader service card.

Meeting Notes

The brainstorming session became the

Want to check over the most recent revisions? They're marked for you.

Open many documents—in as many windows as your Mac's memory allows.

Insert MacWrite™ or ThinkTank™ files.

You accidentally cut this section? Don't worry. MindWrite's accumulating clipboard saved it—and your neck.

Keep this section under 1500 words with Automatic Word Count.

Outline entries are word processing paragraphs whenever you choose.

MindWrite. The best organizer for professionals who write.

The best word processor for professionals who think, combine, reorganize and rewrite.

The easiest way to move back and forth between outlining and writing. The fastest way to make the most changes.

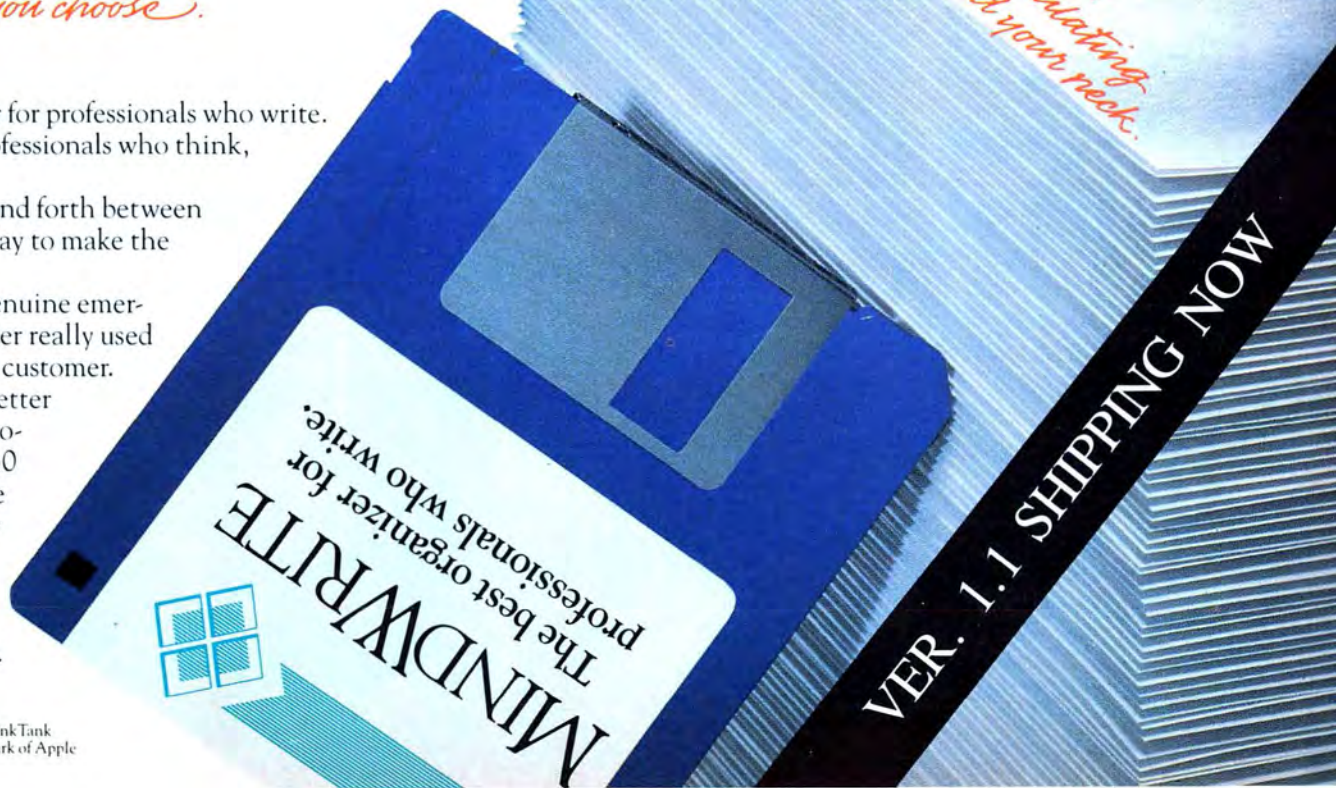
Yet "so easy to learn, I beat a genuine emergency deadline, even though I'd never really used it before," according to one satisfied customer.

And for $295, you can't get a better integration of outlining and word processing. We guarantee it. If within 30 days of purchase you find MindWrite doesn't live up to our claims, call for a refund.

Ask for MindWrite at your dealer. Or call 800-367-4334 to order direct. VISA/MC accepted.

Please circle 78 on reader service card.

MindWork Software, P.O. Box 222280, Carmel, CA 93922
MindWrite and MindWork are trademarks of AthenaSoft. ThinkTank is a trademark of Living Videotext, Inc. MacWrite is a trademark of Apple Computer, Inc.



The Meeting Notes became the Outline. The Outline became the Proposal. The Proposal became the Business Plan.

Each evolved naturally into the next. With MINDWRITE™ you can throw all your preconceptions about Outlining and into the Trash.

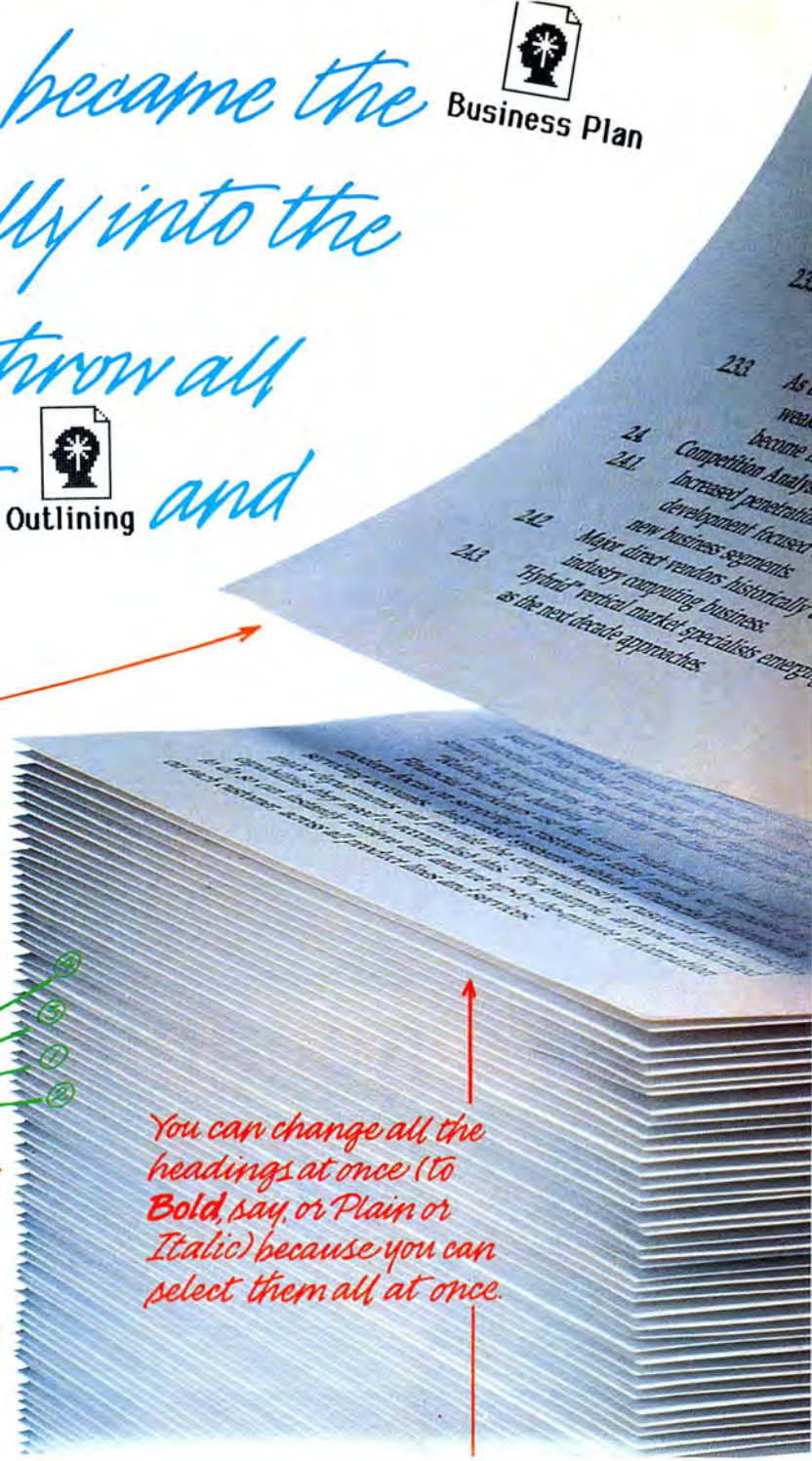
Word Processing

Switch between outline and document in two clicks of the mouse. Even keep them side-by-side in separate windows.

Instantly click from here to here—no need to scroll or recall the page number.

To reorganize, just click on items in the new order. Numbered paragraphs? They're automatically renumbered.

No tedious cutting and pasting—just drag whole sections where you want them.



You can change all the headings at once (to **Bold**, say, or Plain or *Italic*) because you can select them all at once.

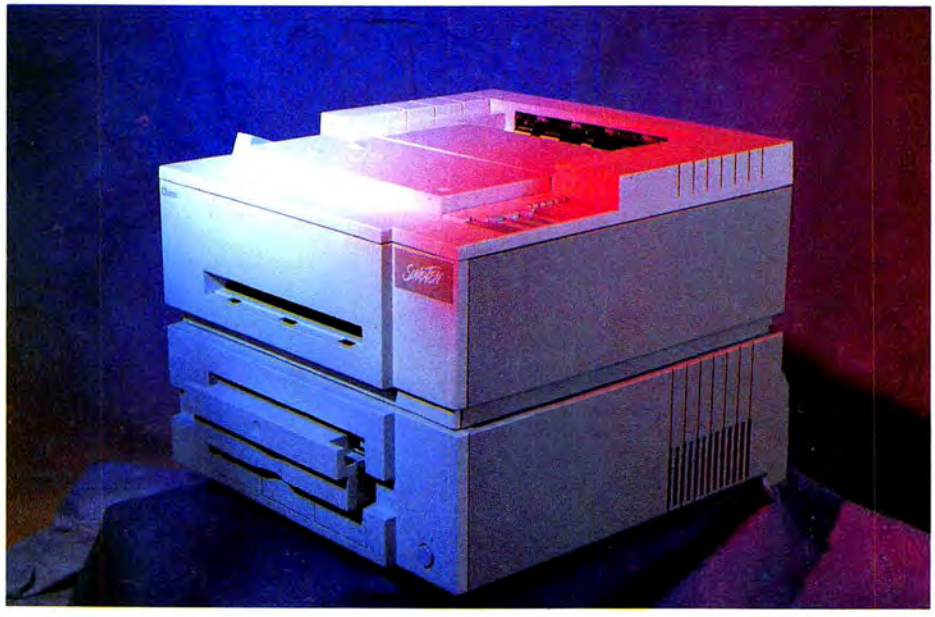
Laser Wars

An array of 300-dpi laser printers slug it out in a MacUser battlefield test.

BY HENRY BORTMAN

TO MANY PEOPLE, THE APPLE LaserWriter (or LaserWriter Plus) is synonymous with the more generic term "PostScript printer"—in much the same way that people refer to photocopiers as Xerox machines, regardless of the manufacturer. There's a good reason for this. In the $5000 to $6000 price range, the Apple LaserWriter was both the first—and for a long time, the only—game in town. But this is changing rapidly. There are now over half a dozen 300-dots-per-inch (dpi) PostScript printers, all roughly the same price, and more are coming to market all the time.

Apple's LaserWriter Plus was the first of its kind: a relatively quick PostScript printer with lots of built-in fonts. While still a fine machine, other cheaper and more feature-laden units are now available.



The Qume Laser Scrip-TEN has 3 megabytes of RAM in it, then most of the units tested here. The amount of RAM in a printer determines the maximum printable area and controls the number of fonts that can be downloaded from the Mac at any one time.

We recently rounded up four of these printers and ran them through a set of rigorous comparison tests. They were carefully examined for several different factors: speed, font download capacity, ease of use and, of course, image quality.

The printers we tested were Apple's LaserWriter Plus, The Laser Connection's PS Jet+ (identical to the QMS PS-800+), Texas Instruments' OmniLaser 2108 and Qume's Laser ScripTEN. Our tests show no clear winner. But the results indicate that Apple's LaserWriter Plus is no longer the unchallenged leader in the field of 300-dpi printers.

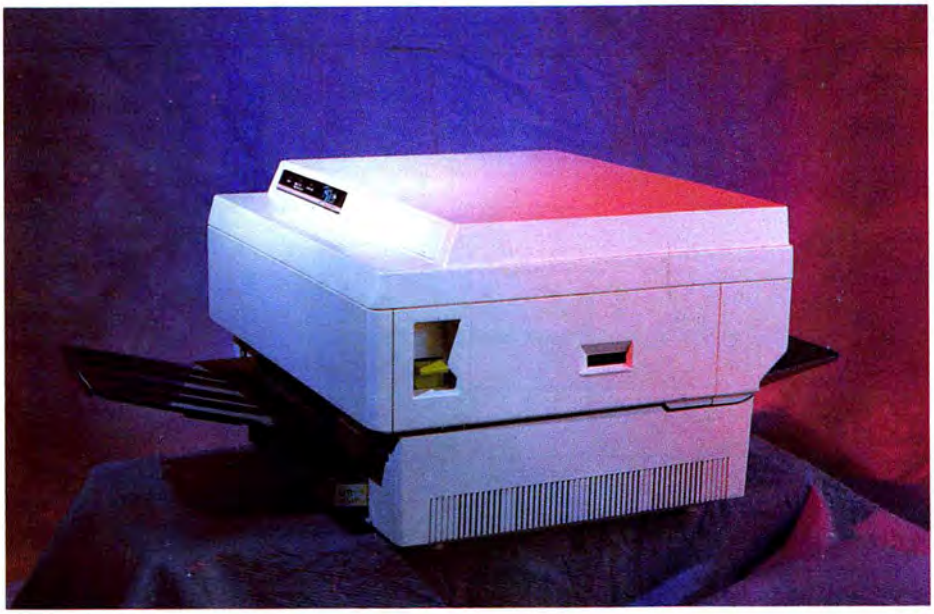
PRINTING IT RIGHT: IMAGE QUALITY

The bottom line in measuring a printer's value is output quality. Printed output can be used as either final output or as camera-ready copy for reproduction. While our comments are based on the pages that came out of the printer, keep in mind that the samples you see in this article have gone through an additional printing process. If you will be using your printer's output as your "final" copy, we suggest that you run tests at your local dealer before making a choice.

Our first trial looked at the question, "How black is black?" Many LaserWriter users have complained that images that should appear black actually come out a streaky dark gray. The OmniLaser wins hands down when it comes to reproducing black tones. Even a full page of black came out solid black throughout (see Figure 1). None of the other printers could match this performance, although the ScripTEN is significantly better than either the LaserWriter Plus or the PS Jet+.

This disparity in blackness is a result of different print "engines." Both the LaserWriter Plus and the PS Jet+ use a Canon engine, which is a "write-black" device. Both the

The Texas Instruments OmniLaser 2108 has the densest blacks of any unit tested. That's because it uses a Ricoh write-white engine. Unfortunately, the dense blacks sometimes lead to toner scatter in areas that should be white.



The Laser Connection's PS Jet+ (identical to the QMS-800+) has a straight paper path and uses a single unit cartridge. These features contribute to its great ease of use.

JOOK LEUNG

Laser Wars

OmniLaser, which uses an engine built by Ricoh, and the ScripTEN, with an Hitachi engine, employ "write-white" technology. The use of write-white technology was an attempt to improve on the washed out appearance of solid dark gray and black areas on a LaserWriter Plus. However, write-white imaging also has its drawbacks.

Figure 2 compares a gray scale from each of the four printers. Nearly all the shades in the OmniLaser's gray scale are darker than the corresponding shades from the other printers. The one exception is the lightest shade, which in the original shows as an uneven barely-noticeable gray and which seems to appear white in Figure 2. The effect of the OmniLaser's overall darkness on gray scale images can be seen in Figure 3 as well. This image was created by scanning a black and white photograph at 300 dpi. The OmniLaser's output looks so muddy that it lacks detail, and when examined under a magnifying glass, shows a lot of "toner scatter"—an erratic dusting of toner in areas where it doesn't belong.

The ScripTEN, while not suffering as badly as the OmniLaser from "ultra-black" syndrome, has uneven-looking grays. The magnification shows that this is caused by irregularly shaped halftone cells.

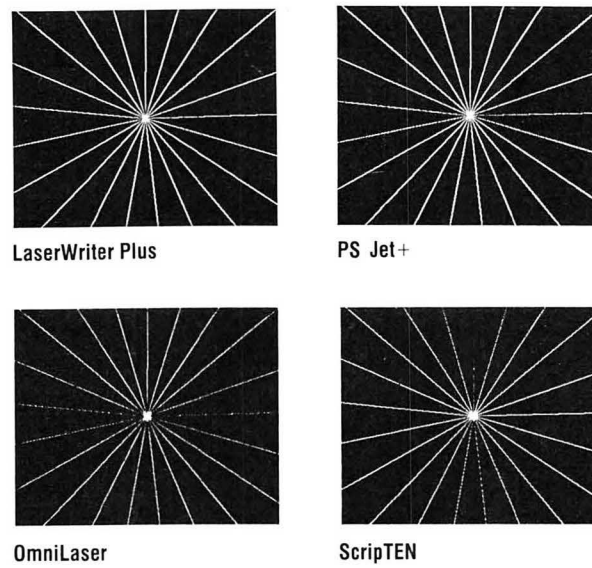


Figure 1: These rectangles were intended to be solid black. The radiating lines are known as hairlines, which in this case are one pixel (1/300″) wide.

The imaging method a printer employs also has an effect on text (see Figure 4). The OmniLaser makes text look too dark, causing plain text to appear almost bold. An examination of the ScripTEN's output under magnification reveals that the unevenness found in its halftones shows up in its text, too. Text printed on the LaserWriter Plus and PS Jet+, by comparison, have much crisper, cleaner edges. This holds true for type at larger point sizes as well as for the 6-point type shown.

PRINTING FROM MEMORY

One issue that plagues LaserWriter Plus users is the lack of available memory. Of the four printers we tested, the LaserWriter has the least RAM, 1.5 megabytes. The PS Jet+ and OmniLaser each have 2 megabytes, and the ScripTEN has 3 megabytes. The amount of RAM and the way that memory is allocated in a PostScript printer determine some important characteristics, such as the maximum area imageable on a

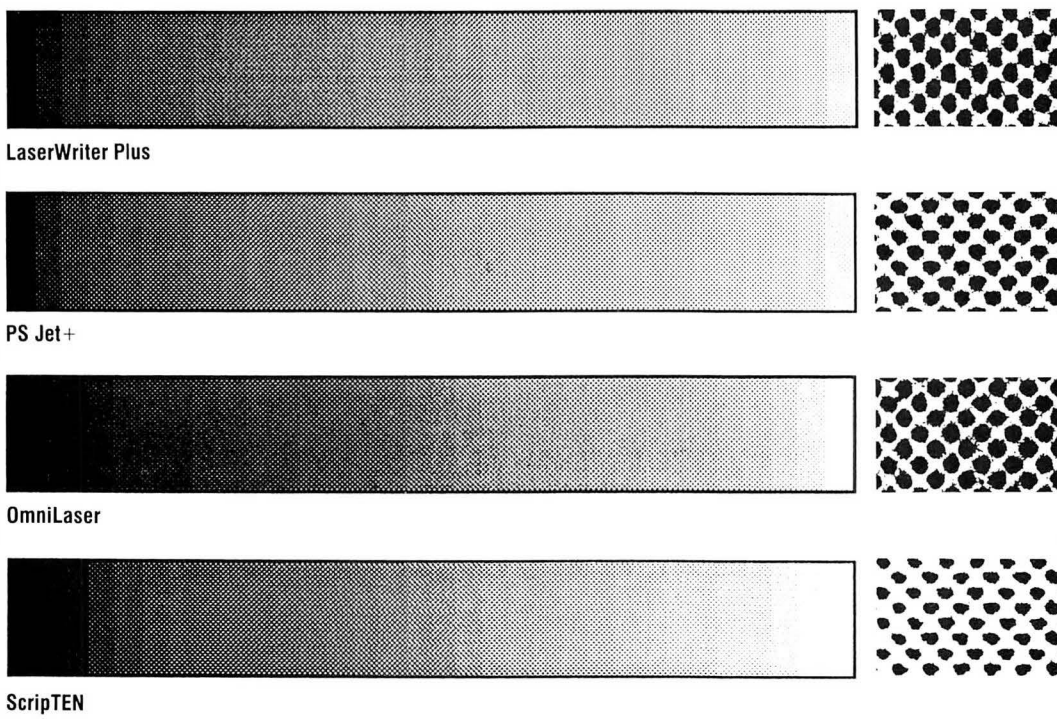


Figure 2: These gray scales show the full range of shades available under normal conditions from a 300-dpi PostScript printer. To the right of each gray scale is a portion of the scale magnified 600%.

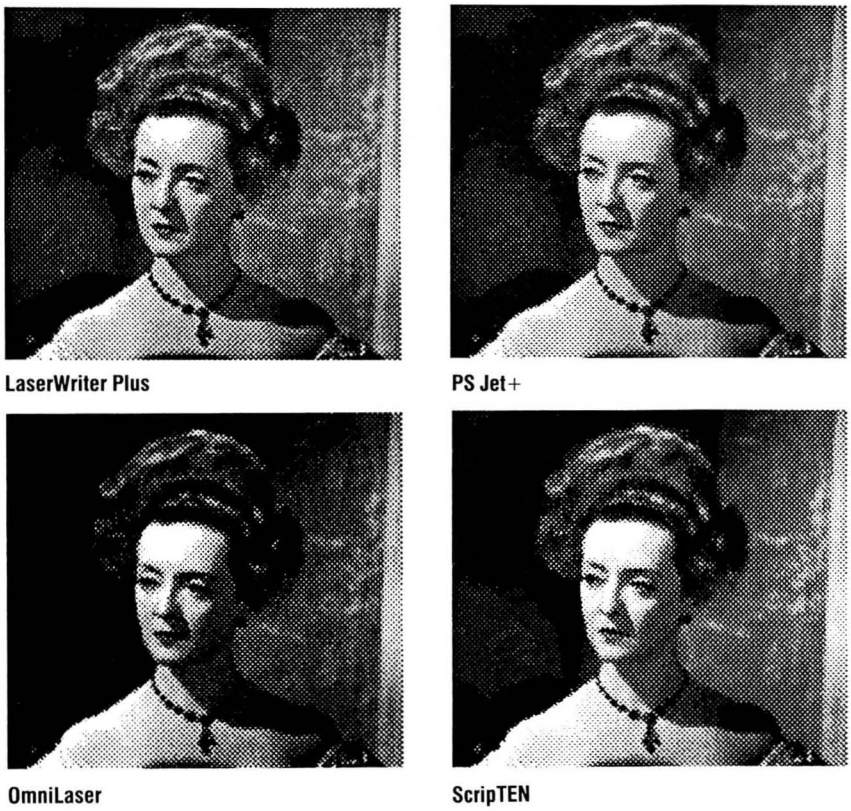
page, the number of fonts that can be downloaded and the size of the font cache.

The more memory a printer has, the larger an area it can print or image. The LaserWriter Plus, for example, can not image a full legal-size page—not because the printing engine is incapable of it, but because there's not enough memory. It's possible to image a full letter-size page on the LaserWriter Plus, but the memory must be "borrowed" from other functions, such as space for downloadable fonts. The comparison chart shows the maximum area each printer can image. Note that the OmniLaser, unlike the other three printers, does not support the use of legal-size paper at all.

Fonts that are not resident in the printer must be downloaded. One of the unfortunate "features" of PostScript is that an attempt to download a font without having the memory needed to store it causes the printer to reset.

In our test, we sent a page that contained text in 20 different fonts, all of which required downloading. The LaserWriter Plus reset after downloading only seven fonts. The OmniLaser, with one half meg more RAM than the LaserWriter Plus, could only handle one additional font, resetting after eight fonts were downloaded. The PS Jet+, with the same total amount of RAM as the OmniLaser, downloaded 11 fonts before resetting (memory is allocated differently in the two printers). The winner in this category, thanks to its 3 megabytes of memory, was the ScripTEN, which was able to print all 20 fonts without resetting.

The OmniLaser's poor showing in this test is particularly serious because the resident fonts in this printer include only the 11 fonts found on the original LaserWriter (the Times, Helvetica and Courier families, plus Symbol). The PS Jet+ and ScripTEN contain the full set of 35 fonts standard in the LaserWriter Plus.



LaserWriter Plus | PS Jet+

OmniLaser | ScripTEN

Figure 3: A halftone image created by scanning a black and white photograph at 300 dpi.

LaserWriter Plus | PS Jet+

OmniLaser | ScripTEN

Figure 4: A sample of 6-point Times Italic type, at regular size and magnified 600%.

PRINTING IT FAST: THROUGHPUT

An often heard complaint about PostScript printers is that they are slow—rarely achieving their rated throughput. Three of the printers in our comparison test—the LaserWriter Plus, the PS Jet+ and the OmniLaser—are rated at eight pages per minute (ppm). The ScripTEN is rated at ten ppm. Figures 5 through 7 show you what you can really expect.

Figure 5 compares the printing speed of a seven-page *Word* 3.0 document which contained only 12-point Times Roman body type and 14-point Helvetica Bold headlines. The first group of columns repre-

Nothing gets the jobs done

Some people never know where their next job's coming from. That's why there's Microsoft® Works, the winner of five major awards—including Macworld's 1987 and MacUser's 1986 *Integrated Product of the Year* awards.

Microsoft Works is a one-disk software program that gracefully integrates:

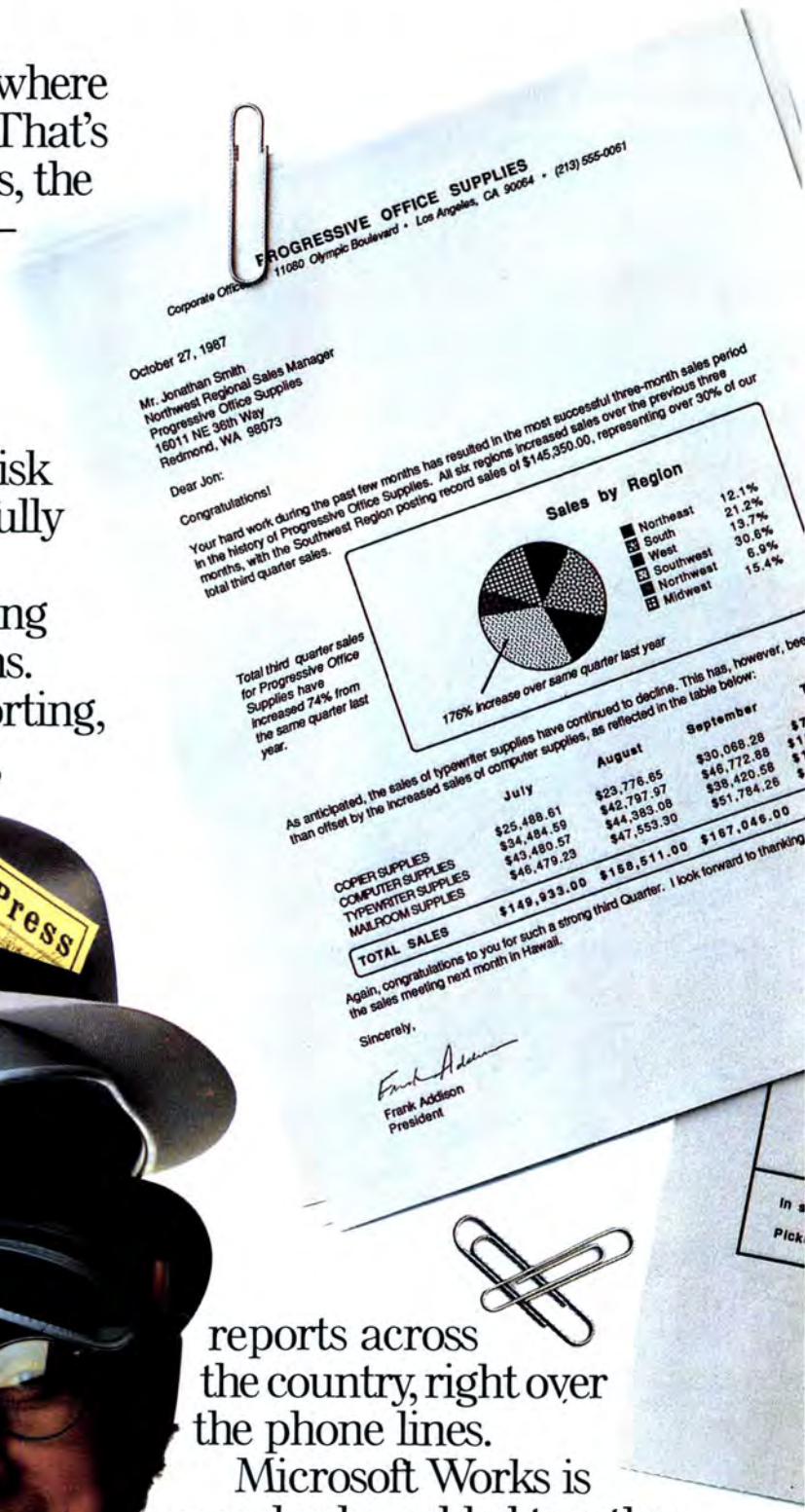
Word processing, for writing memos, reports, presentations.

A database tool with reporting, to keep track of clients, jobs, vendors.

A spreadsheet with charting, to compute, analyze, interpret, and then graph anything to do with finance or numbers.

Finally, a communications tool which lets you get stock quotes, make travel reservations, do research, and send reports across the country, right over the phone lines.

Microsoft Works is seamlessly melded together. You can have all four tools on screen at once. Jump instantly


PROGRESSIVE OFFICE SUPPLIES
11080 Olympic Boulevard • Los Angeles, CA 90064 • (213) 555-0061

Corporate Office

October 27, 1987

Mr. Jonathan Smith
Northwest Regional Sales Manager
Progressive Office Supplies
16011 NE 36th Way
Redmond, WA 98073

Dear Jon:

Congratulations!

Your hard work during the past few months has resulted in the most successful three-month sales period in the history of Progressive Office Supplies. All six regions increased sales over the previous three months, with the Southwest Region posting record sales of $145,350.00, representing over 30% of our total third quarter sales.

Sales by Region

Northeast 12.1%
South 21.2%
West 13.7%
Southwest 30.6%
Northwest 6.9%
Midwest 15.4%

Total third quarter sales for Progressive Office Supplies have increased 74% from the same quarter last year.

176% increase over same quarter last year

As anticipated, the sales of typewriter supplies have continued to decline. This has, however, been more than offset by the increased sales of computer supplies, as reflected in the table below:

	July	August	September
COPIER SUPPLIES	$25,488.61	$23,776.65	$30,068.28
COMPUTER SUPPLIES	$34,484.59	$42,797.97	$46,772.88
TYPEWRITER SUPPLIES	$43,480.57	$44,383.08	$38,420.56
MAILROOM SUPPLIES	$46,479.23	$47,553.30	$51,784.26
TOTAL SALES	$149,933.00	$158,511.00	$167,046.00

Again, congratulations to you for such a strong third Quarter. I look forward to thanking you in person at the sales meeting next month in Hawaii.

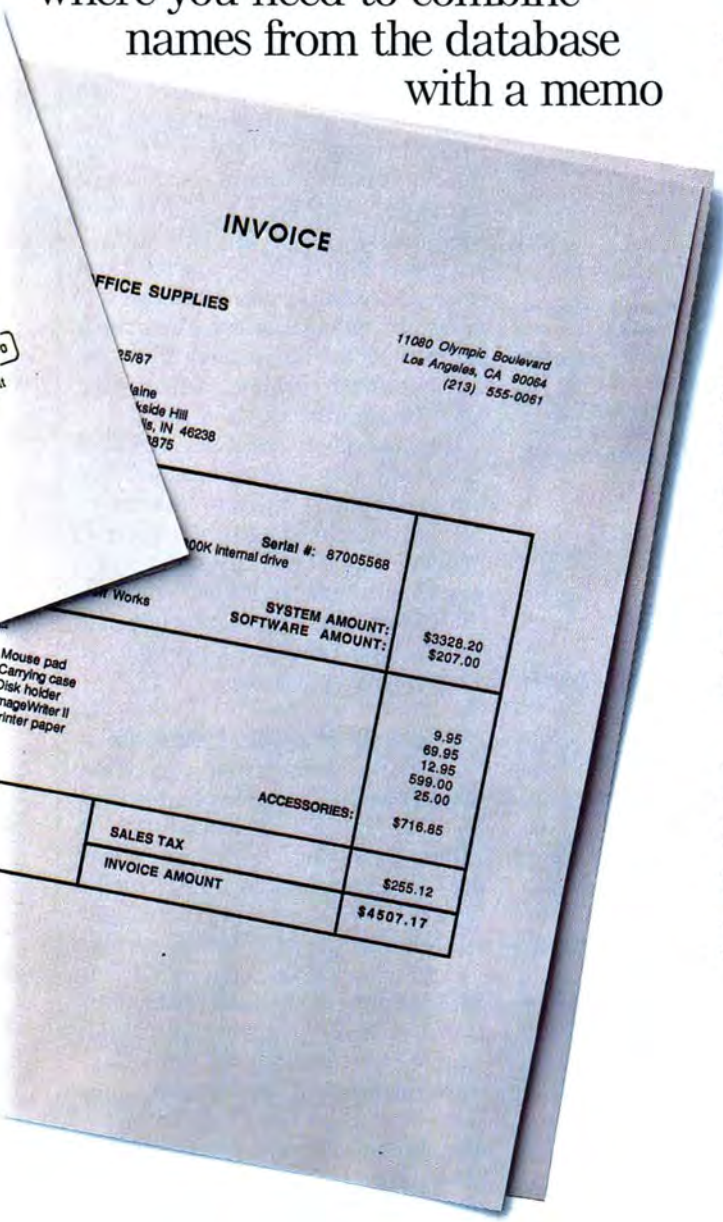
Sincerely,

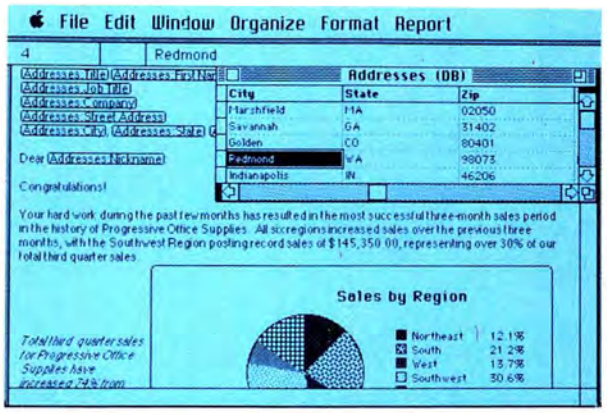
Frank Addison
President

ike Microsoft Works.

from one to another. And later combine work done in each part of the program on a single printed page.

This easy exchange of data makes jobs go faster and much, much easier. (Like form letters where you need to combine names from the database with a memo written in the word processor.)





Learning Microsoft Works is a snap. It starts with a painless, step-by-step, computer-based training program. Before you know it, you know it.

All in all, Microsoft Works is a superb solution for day to day, get-it-done problems—an inspiring display of convenience, efficiency, and utility.

And of course, it's a product of Microsoft, the preeminent developer of programs for the Macintosh.™

If you're in a business that won't let you stick to one thing, check out Microsoft Works—the program that can change jobs as fast as you do.

Microsoft® Works. For everyone.

For the name of the nearest Microsoft dealer, call (800) 426-9400. In Washington State and Alaska, (206) 882-8088. In Canada, call (416) 673-7638.

Microsoft is a registered trademark of Microsoft Corporation. Macintosh is a trademark of Apple Computer, Inc.

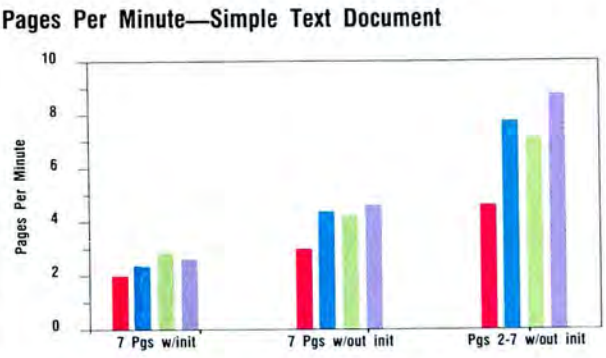


Figure 5

Figure 5: PostScript printers rarely achieve their rated throughput. These graphs show printing speed for a seven-page *Word* 3.0 document. The first set of graphs include the time required to initialize the printer and print the document. The second set is for the same document without initialization. The third set disregards the time spent printing page one of the document.

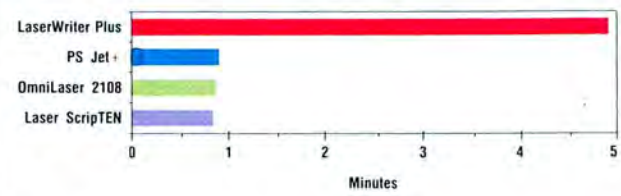


Figure 6

Figure 6: Bit-maps in a document increase printing time, especially on the LaserWriter Plus, which contains an older version of PostScript than the other printers tested.

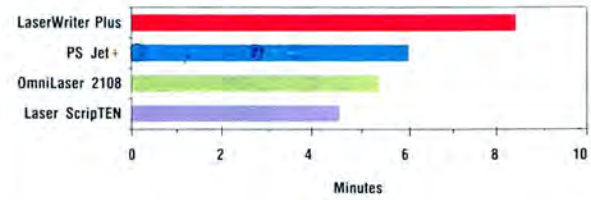


Figure 7

Figure 7: When a large variety of typefaces, point sizes and styles are used, printing slows down. Printers with larger font caches can handle type variety more efficiently.

LaserWriter Plus PS Jet+ OmniLaser ScripTEN

sents the average throughput for the entire document, printed just after the printer was turned on, and including the initialization time. None of the printers came anywhere near its rated speed under these conditions. The OmniLaser had a slight edge on this test, with the PS Jet+ and ScripTEN tied for second place. The LaserWriter Plus came in last.

The second group of columns shows the speed to print the same document after the printer was already initialized. Here the ScripTEN had a slight edge and, again, the LaserWriter Plus lagged significantly behind.

In the third comparison, the time it took to print the first page of the document is ignored in calculating the average per-page speed. The first page of a document often takes longer to print than subsequent pages. This should give you an idea of how each printer performs on lengthy documents. The PS Jet+ and the OmniLaser came pretty close to their eight ppm rating, and the ScripTEN edged up to about nine of its rated ten ppm. The LaserWriter Plus, at just over four ppm, was left in the dust.

Figure 6 shows what happens when bit-map graphics are added to a document. The page used for this test was a *MindWrite* document in Times Roman with two 1.5 X 4 inch bit-map graphics on it. All the printers took roughly a minute to image this page, with the exception of the LaserWriter Plus, which took over five minutes. This is mainly because the LaserWriter Plus employs a significantly older version of PostScript than the other three printers tested (see the comparison chart for details).

The final speed test (Figure 7) compares the font caching abilities of the four printers. Font caching is important when you use many different fonts, styles or point sizes. In a PostScript printer, the first time a character appears in a particular font, style, point size and rotation angle, its dot image is stored in a "font cache" (a reserved portion of the printer's memory), so that the next time it appears it doesn't need to be re-imaged. But there's a hitch: the font cache has a limited size. If enough different character/font/style/size/rotation combinations are called for in a document, the printer starts deleting old images from the cache to make room for newer ones, and throughput slows down.

The document used for the font cache test was only one page long, but it had 2300 different characters, each of which had to be separately imaged. The ScripTEN did the job in just over four and a half minutes; the LaserWriter Plus took eight and a half. The other two printers fell somewhere in between.

PRINTING IN DISGUISE: EMULATION

All the printers tested, except the OmniLaser, are capable of emulating a Diablo 630 daisywheel printer. In addition, all but the LaserWriter Plus can emulate an HP LaserJet Plus. The PS Jet+ and OmniLaser also emulate an HP 7475A plotter, which uses HPGL commands. In addition, the OmniLaser can emulate a TI855 in both "dp" mode (supports Epson MX-80 with Graftrax drivers) and "wp" mode (supports Qume Sprint 11 drivers). Users who always use a Macintosh will have little use for emulation, but those who wish to access their print-

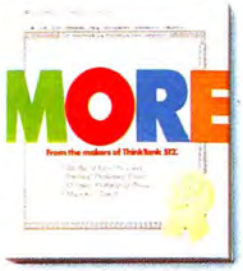
HE'S GOT THREE QUESTIONS. YOU'VE GOT TWO ANSWERS. YOU NEED MORE.

Next time, get your act together.

With Living Videotext's MORE,™ you can organize your presentation, anticipate every objection. And win.

So call 1-800-822-3700. In California, 1-800-443-4310.

And before you know it, you'll be the one asking all the questions.



Not copy protected. Suggested retail price $295. MORE is a trademark of Living Videotext, 117 Easy Street, Mountain View, CA 94043. © 1987, Living Videotext.

er from IBM PCs as well—particularly if they use software that supports only non-PostScript printers—may find these features invaluable. If your needs run in this direction, ask a dealer to demonstrate the printer's emulation mode(s), using your favorite PC-DOS software.

PRINTING IT EASILY: SETUP AND USE

The first thing a new printer user confronts is setup. Documentation is critical in this procedure. Both the LaserWriter Plus and the PS Jet+ come with excellent documentation and disks containing set-up utilities. The documentation for the PS Jet+, targeted at both the PC and Macintosh markets, carefully explains how to use the printer with both types of computers. It includes a 5¼-inch disk for PC users as well as the familiar Macintosh disk.

The OmniLaser documentation was nowhere near as good. In fact, I could not easily find a set of step-by-step instructions for setting up the printer. While the documentation we saw was not in its final form, users will probably receive something similar. I can't rate the ScripTEN documentation, since it had "PRELIMINARY" stamped all over it and didn't even contain the illustrations. Neither the OmniLaser nor the ScripTEN came with utility disks.

Another consideration is the strategy used for replacing consumables, such as the OPC (the imaging belt) and toner. Both the LaserWriter Plus and the PS Jet+ use a single-unit replacement cartridge. The advantage of this approach is that the user never has to come in contact with the toner. The alternative, employed by the OmniLaser and ScripTEN, is separate OPC and toner replacement. (The ScripTEN also has a replaceable developer unit.) Since the OPC is rated to last for more than one toner refill (and consequently needs replacement less often), TI and Qume claim a lower per-page cost of printing. This claim is based on the manufacturers' ratings of how long various consumable items are expected to last. I had no way of judging this objectively, but did manage to make a mess replacing the toner on both the OmniLaser and the ScripTEN. In addition, the OPCs are easy to dam-

Printer Comparison

	LaserWriter Plus	PS Jet+	OmniLaser 2108	ScripTEN
Price	$5799	$5495	$5995	$5295
Resident fonts	35	35	11	35
Rated speed (ppm)	8	8	8	10
Paper sizes (1)	let, A4, leg, B5	let, A4, leg	let, A4	let, A4, leg, B5
Max image area/letter	8×10.75	8×10.5	8.25×10.5	8.4×10.75
Max image area/legal	6.75×12.75	8×13.5	can't do	8.4×13.75
Total RAM	1.5M	2M	2M	3M
Virtual memory	175K	480K	470K	900K
Font cache	160K	279K	243K	400K
Marking engine	Canon LPB-CX	Canon LPB-CX	Ricoh 4081	Hitachi SL-100
Write white/black	black	black	white	white
Weight (lbs)	77	80	77	90
Height/width/depth	11.5×18.5×28.2	11.4×18.7×16.3	15×20×24	20×17.25×15
Input paper tray capacity	100	100	250	250
Paper path/envelopes	straight/yes	straight/yes	curved/no	curved/no
Consumables	single unit	single unit	OPC, toner	OPC, toner, developer unit
PostScript version	38.0	46.1	45.0	47.0
Emulations (2)	D	D, LJ+, HPGL	D, LJ+, TI855,	LJ+
			HPGL/HP7475A	
Interfaces (3)	A, 232	A, 232, 422, C	A, 232, 422, C	A, 232, C
Max serial baud rate	9600	19.2K	57.6K	9600
Processing indicator	lights	lights	LED display	none
(1) - let=8.5×11; leg=8.5×14; A4 & B5 are European sizes				
(2) - D=Diablo 630; LJ+ = HP Laser Jet Plus; HPGL=HP Graphics Language (plotter), TI855 includes dp (Epson MX-80 w/Graftrax) and wp (Qume Sprint 11)				
(3) - A=AppleTalk; 232=RS-232; 422=RS-422; C=Centronics-type parallel				

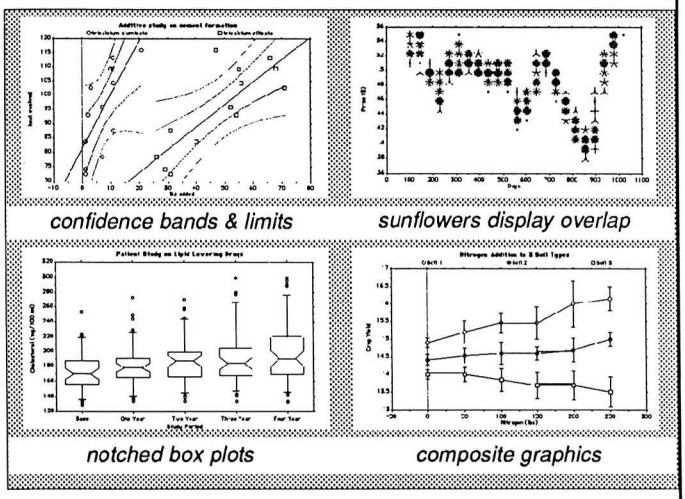
BrainPower, Inc.

Software for Professional Productivity

StatView *512+*

A professional data analysis package.

StatView 512+ offers statistical and graphic power that cannot be matched by any other Macintosh application, and ease–of–use that cannot be matched by the mainframes. Descriptive, comparative, nonparametric, and multivariate analyses are performed with 18 point precision and are complemented by bar, pie, and line charts, plus box plots and scattergrams. Powerful data handling, transformation and recode facilities make this a professional's tool. Data can be easily imported in text file form from other Macintosh applications or from other computers. Call for review reprints & brochure!



confidence bands & limits — *sunflowers display overlap*

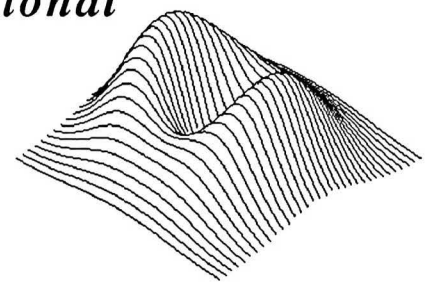
notched box plots — *composite graphics*

Requires 512K of RAM and 800K of disk drive capacity.
Demo disks: $20.00. **$349.95**

New...

MathView

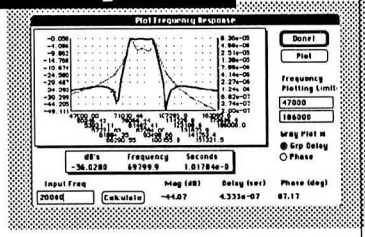
Professional



MathView *Professional*™ is a powerful, stand–alone mathematics package that handles a wide range of mathematical problems in the following areas: function evaluation; solving systems of linear and non-linear equations; 2 and 3 dimensional plotting of functions; matrix operations; Fast Fourier transformations; numerical integration; real and complex root finders; constrained and unconstrained optimization; statistics; series operations; partial and ordinary differential equations *and much more!*

MathView *Professional* requires a Macintosh with at least 512K of RAM, the 128K ROMs, and 2 disk drives. MathView *Professional* will ship September 15, 1987. MathView *Professional* $249.95. Demo disks: $10.00.

DesignScope



Save *time and money* as you speed up validation of system level design. Analog and digital systems can be assembled, simulated, changed, resimulated in a matter of minutes. Data defining waveforms can be imported/exported via clipboard or text file. Includes up to 16th order VC filters (with response plots), PLLs, VCO's, digital logic gates, FFTs, oscilloscopes, amplifiers, comparators, and more. DesignScope, system level simulation on any Macintosh with at least 512K, is $249.95. Demo disk: $10.00.

Graphidex

...a graphics management system that lets you index graphics and *retrieve, edit, and paste* them from inside any application! Graphidex allows you to index 10,000 MacPaint or MacDraw pictures in a single index. The index is the key to having those pictures at your fingertips from inside word processors, page layout programs, and graphics packages. The Graphidex desk accessory, in addition to accessing the pictures, provides a full pallet of on–line graphic modification tools including fatbits editing, rotating, resizing, inverting, and adding borders. Graphidex, with 300 general purpose graphics indexed, is $124.95 and requires 512K of RAM. Demo: $10.00.

BrainPower, Inc. 24009 Ventura Blvd, Calabasas, CA 91302 (818) 884–6911 (800) 345–0519

Please circle 8 on reader service card.

Sibling Rivalries

Although I tested only a single model from each of the printer manufacturers, all of the companies offer other models, too.

- Apple sells the LaserWriter, similar in most respects to the LaserWriter Plus, but which contains only 11 resident fonts and sells for $4999. An upgrade from the LaserWriter to the LaserWriter Plus is available for $899.
- The Laser Connection, a wholly owned subsidiary of QMS, makes the PS Jet as well as a PS Jet+. It's similar to the PS Jet+ in all respects, except that, like the LaserWriter, it contains only 11 resident fonts. Its cost is $4995. In addition, the Laser Connection offers PostScript upgrade kits which converts the HP LaserJet and LaserJet Plus printers to PS Jet or PS Jet+ printers. These converted printers are identical in performance with the PS Jet/Jet+. The cost of the upgrades: PS Jet , $2995; PS Jet+, $3495. It makes no difference whether you start with a LaserJet or a LaserJet+. The upgrade only uses the original machine's print engine and completely replaces the intelligent controller. Finally, QMS, the parent company, sells a PS-800 and PS-800+, which are identical to the PS Jet and PS Jet+. OEMs should contact QMS; end users should contact the Laser Connection.
- Texas Instruments makes an OmniLaser 2115 as well as the 2108 which I tested. The 2115 is significantly different. It uses a Ricoh engine rated at 15 pages per minute—nearly double the speed of the engine in the 2108. It comes standard with two paper trays, including legal size, and has a total of 3 megabytes of memory. The price for this enhanced model is $7995.
- Qume offers a 2-megabyte version of its LaserScripTEN as well as its 3-megabyte model. Everything else about the two printers is the same, although memory-dependent features like font cache size and font download capacity will be affected. The 2-megabyte unit costs $4795. An upgrade kit for 2-megabyte owners who wish they had gotten a 3-megabyte version instead is $595.

age. While they are not hard to replace, the OPC is completely exposed during replacement—and it only takes 15 minutes of bright light or a single fingernail scratch to ruin them.

AND...ENVELOPES

The LaserWriter Plus and PS Jet+ both use a straight paper path. Some users complain because this causes pages to come out in reverse order. To address this problem, TI and Qume engineered a curved paper path. Their output comes out face down, collated. The problem with this approach, however, is that neither the OmniLaser nor the ScripTEN can print envelopes. The importance of this item will depend on what you use your printer for.

AND THE WINNER IS

Based on the units tested, I rate the PS Jet+ the best overall buy. Although it lacks the 3 megabytes of memory found in the ScripTEN and is slower, its image quality was superior. The PS Jet+ is also packaged well for use with IBM PCs and clones as well as with the Macintosh. Since it's cheaper than the LaserWriter Plus and has more memory, but is identical in many other respects, I would unequivocally recommend it as a better buy than Apple's current product.

The Qume ScripTEN, however, is a definite contender. It contains 3 megabytes of memory, is significantly faster than any of the other printers tested and is the least expensive. While the image quality was inadequate in the unit tested, I was able to examine the output of a second unit at presstime, and it showed a marked improvement. If this second unit is representative of the machines Qume is shipping, the ScripTEN could replace the PS Jet+ as a best buy.

The OmniLaser has only one claim to fame: it does black and gray solids extremely well. But this one strength degrades the appearance of both text and halftone images significantly. When coupled with the fact that this printer contains only 11 fonts and that the documentation is questionable, I cannot recommend this printer.

Finally, the LaserWriter Plus needs improvement. Its image quality is virtually identical to that of the PS Jet+, but it can't match the latter in speed, font download capacity, connectivity or price. Apple can no longer rest on its laurels or its market position. If they want to remain competitive, they must, at a minimum, upgrade to a newer version of PostScript and increase the amount of available memory.

A final note: The PostScript printer market is dynamic. By the time you read this, there'll probably be several other eight-to-ten ppm, 300-dpi printers available in addition to these four. I know of two already—one from NEC and one from Quadram—that were in beta testing as I prepared this article. If you are in the market for a PostScript printer, shop around. Invest in an 8X loupe (a printer's magnifying glass) and take a good hard look at what comes out of the printers you are considering. Try printing your favorite files and see how they look; time how long they take to print. A PostScript printer is a major investment—make sure you're satisfied before you buy.

HENRY BORTMAN IS A SAN FRANCISCO FREELANCE WRITER. HE IS A FREQUENT CONTRIBUTOR TO MACUSER.

Addresses

Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 973-2222
(800) 538-9696 (for local dealer info)

Texas Instruments, Inc.
PO Box 2909
Austin, TX 78769
(800) 527-3500

The Laser Connection
7852 Schillinger Park West
Mobile, AL 36608
(800) 523-2696
In AL, call (205) 633-7223

Qume Corporation
2350 Qume Drive
San Jose, CA 95131-1893
(800) 223-2479

If you think all memory upgrades are created equal, let us make a few points of distinction

Before you buy a memory upgrade, it pays to really examine what you're getting for your money.

We can show you what to look for by making these points of distinction on Brainstorm,™ the complete memory expansion kit from Mac Doctor Electronics.

GUARANTEED EXPANDABILITY

All memory upgrades are expandable, right? Wrong. Only Brainstorm guarantees full expandability up to 4 megabytes. When you try to expand the others, they require you to insert memory chips that they don't even provide! Or they tell you to remove the Mac's motherboard and wait 8 weeks to get your upgrade back.

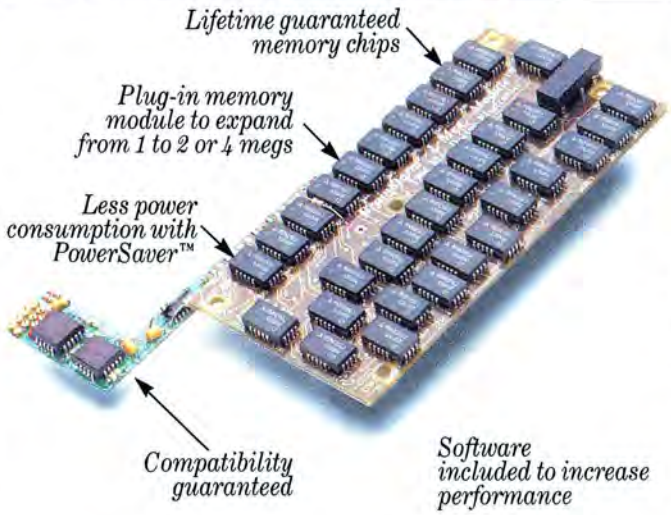
Brainstorm lets you upgrade quickly and easily by simply exchanging a plug-in memory module. You can even do it yourself.

SOFTWARE THAT OUTPERFORMS THE REST

We're pointing out the fact that Brainstorm comes with a complete set of Performance Software™. Of course, most upgrades include utility software.

But what really sets us apart is our user's *Guide To Increased Mac Performance.* This guide tells you in plain English how to squeeze every byte of usefulness out of your memory increase–and that's a definite distinction.

NOW AVAILABLE FOR MAC 128, 512, PLUS, SE AND II



NO FAN NEEDED

Brainstorm doesn't require a fan to keep its cool, because it uses special PowerSaver™ and CMOS memory chips that reduce memory energy consumption over 50%.

That's why you can increase memory size up to four times and run as cool as before! Just ask the others to do the same trick...

THE SMALLEST UPGRADE GIVES YOU MORE

The Brainstorm memory kit doesn't penalize you by taking all of your available motherboard space. In fact, it's so compact that even at 4 megabytes, Brainstorm accommodates both internal hard drives and external drives that use clip-on SCSI ports. And even allows you to install the daughterboards of accelerators.

GUARANTEES THE OTHERS CAN'T TOUCH

Mac Doctor guarantees that Brainstorm will function without defect or we will repair or replace it free for one year. The memory chips are guaranteed for a lifetime–free replacement for as long as you own your Macintosh. And, you get the special guarantees of both expandability and compatibility.

100% COMPATIBILITY WITHOUT FAIL

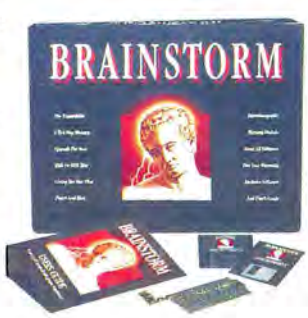
Use whatever Apple software and accessories you want with Brainstorm, because it's fully compatible with both old and new Apple ROMs, the 400K and 800K disk drives and all software for Macintosh computers.

FREE NEWSLETTER ON INCREASING MAC PRODUCTIVITY

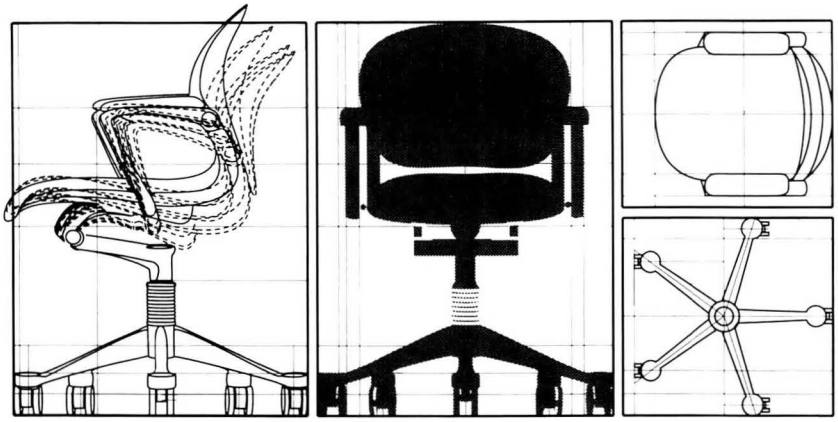
Call today and get a free subscription to *Brainstorming*, the bimonthly newsletter that explains how memory upgrades work and gives you tips on getting the most from your Mac.

See how Brainstorm can improve your Mac's productivity at a price you can afford; only $330 for a Brainstorm with a one megabyte module for a Mac 512E. Order Brainstorm now by calling (415) 964-2131, extension 20.

And learn the distinction between a quality memory upgrade–and all the rest. Mac Doctor Electronics, 1145 Terra Bella Avenue, Mountain View, CA 94043.



Please circle 182 on reader service card.



Chair art courtesy of Apple Computer, Inc.

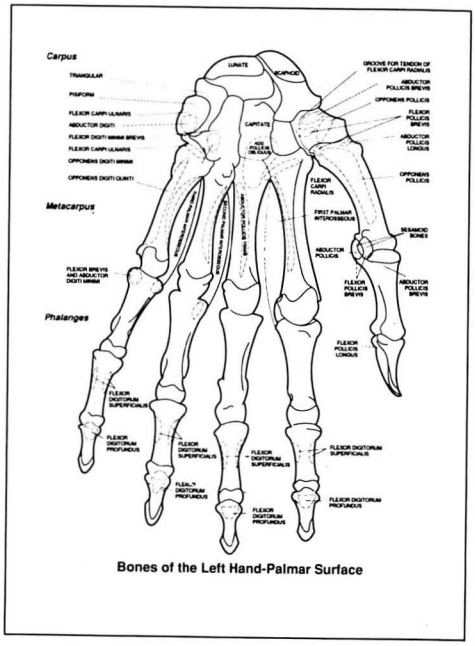
Other draw and paint programs also let you add captions. But none of them can put those captions next to the sharpest, cleanest lines and curves on the map.

With its powerful curve drawing capabilities, Adobe Illustrator makes short work of the most technical drawings. And gives you camera ready output right at your desk.

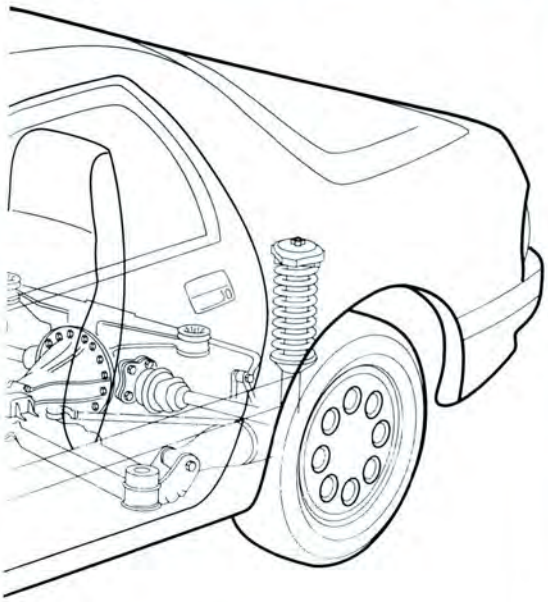
Share your drawing with other users. And if anyone wants to change it—no problem—the Adobe Illustrator can give you another perfect original. Fast.

Start with a blueprint or just a dream and the Adobe Illustrator can help you build out the rest. Straight and true.

For producing the finest details, all kinds of line weights, even typeset captions with precise control, no other program can touch it.



Bones of the Left Hand-Palmar Surface



Unlike other draw and paint programs, the Adobe Illustrator uses lines and curves to form an image, instead of dots. So there's really no limit to the ideas you can hatch. Or cross-hatch.

GRAB A BITE TONIGHT

Change is the name of the game in logo design. And the Adobe Illustrator can make changes in a fraction of the time it would take by hand. And not a big fraction, either.

NOW A WORK OF ART DOESN'T HAVE TO BE A LOT OF WORK.

Introducing **Adobe Illustrator.™**
A new software program designed to produce high quality illustration with the smoothness of a french curve, the versatility of a pencil and the speed of a computer.
Here's how it works.

Unlike other programs, the Adobe Illustrator doesn't build an illustration dot by dot. It uses precise *lines and curves* instead.

Secondly, nothing has to be drawn from scratch. You and your Macintosh Plus,™ SE™ or II,™ can start with the scanned image of a photograph, logotype, blueprint, something from your scrap file, even a rough sketch.

Once in the computer, this scanned image becomes your guide. You trace over it to construct the new image. Then, once you have the image you want, you can manipulate it in ways possible only with a computer—scale it, rotate it, even combine it with other Adobe Illustrator images.

From an artistic point of view, then, the Adobe Illustrator is a powerful, new medium.

But it's also a powerful new production tool. One that automates the art production process.

Imagine, if you will, getting camera ready art out of a Macintosh. (We did. You're looking at it.)

Or being able to change that art radically—as easily as you'd edit a letter—and getting new art, literally, within minutes.

Imagine keeping every image in small electronic "art files," and being able to recall, refine, combine or change images, at any time, in any way.

Without any of the usual production headaches.

And just picture what you can do when you combine the Adobe Illustrator with the most popular page layout systems.

It also drives each and every POSTSCRIPT®-equipped printer, from the Apple® LaserWriter™ to Linotype's® Linotronic™ 300 typesetter.

So the problem of getting high resolution has finally been resolved.

To see for yourself, call (800) 29-ADOBE, (800) 85-ADOBE in California, or (415) 852-0271 from Canada for the location of the nearest Adobe dealer. You'll get a demonstration that'll really draw your interest.

ADOBE ILLUSTRATOR™

Adobe Illustrator is a trademark and POSTSCRIPT is a registered trademark of Adobe Systems Incorporated. Other brand or product names are trademarks or registered trademarks of their respective holders. ©1987 Adobe Systems Incorporated, 1870 Embarcadero Rd., Palo Alto, CA 94303.

ADOBE SYSTEMS INCORPORATED

Please circle 286 on reader service card.

Excel Revisited: The Macro Chapters

There's no need to fear Excel's macro power. Just follow these simple steps and put it to work.

BY LOUIS BENJAMIN

THE DAY HAS COME. YOU'VE heard that you can do wonders with *Excel* macros, but somehow you never quite managed to tackle that second manual. Now, you need to ensure that an associate enters data into your model correctly, and you can't be around to supervise. Your best bet is to make an entry macro. But how?

Excel is a numerical environment so rich with potential that it's hard to exhaust its capabilities. Once you've mastered the basic spreadsheet and charting functions, there's plenty more to explore in the way of macros.

When you design a spreadsheet in *Excel*, there's a lot you can do without using a single macro, so it's easy to ignore them. On the other hand, there are times when a well-written macro can make all the difference.

You may already know that creating macros is simple using the recorder function. Perhaps you've even modified a few of those recorded macros. Now is the time to move beyond those first toddling steps.

WHY MACROS?

Macros have two key functions. They automate repetitive processes and, if written carefully, they increase accuracy. Even slightly complex models can get out of control, but a set of macros can tame an unruly beast.

There are actually two classes of macros in *Excel*. *Command macros* physically change your worksheet, and are typically activated with an Option-Command keystroke combination.

The second, more ingenious and considerably rarer form of macro is the *function macro*. Such macros accept "arguments," or parameters, and generally perform mathematical operations that return a result. Function macros, once constructed, behave just like *Excel*'s built-in functions. Often function macros are not called by other macros, but by formulas in worksheet cells.

BUILDING BLOCK

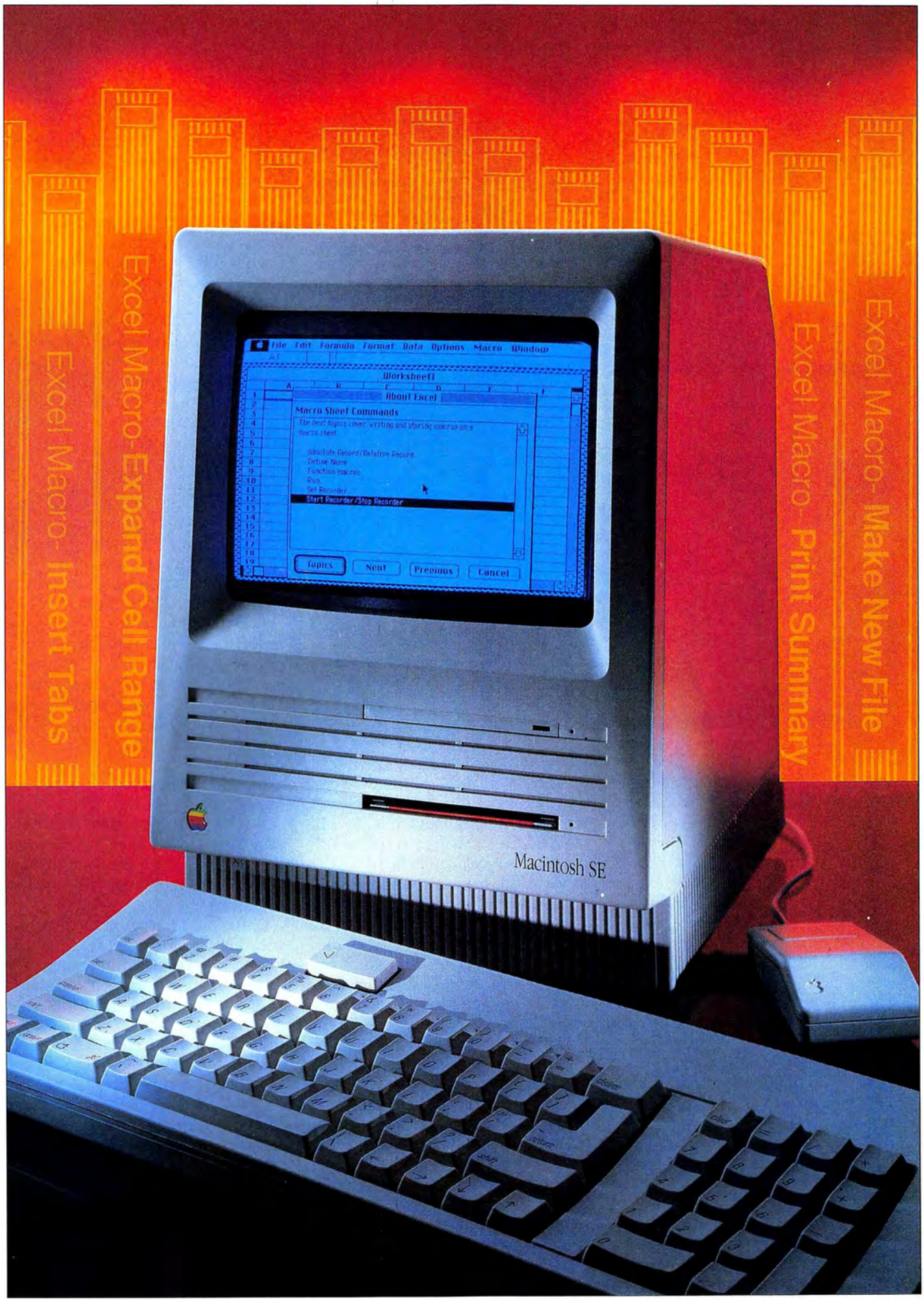
Believe it or not, macros are *programs*. If you take a few special steps, you can make very flexible and powerful macros. At the same time, you'll be able to understand their function without having to remember the formula.

Well-written macros are always labeled. This makes it possible to visually locate them and it simplifies the tracing process in the event of bugs. Generally, my macros are labeled in bold text, which makes them stand out.

Macros always have a name. A good macro will have a mnemonic name—one that reminds you of its purpose. "Macro1" doesn't tell you much, but "Make_New_File" tells you a lot.

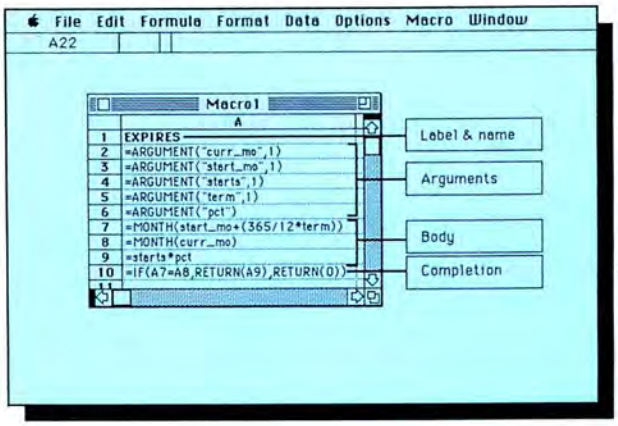
Notice that I used underlines in place of spaces in the range name. Although the Macintosh allows for spaces in file names, *Excel* won't tolerate them in range names.

When naming a macro, you have the option of specifying it as a func-

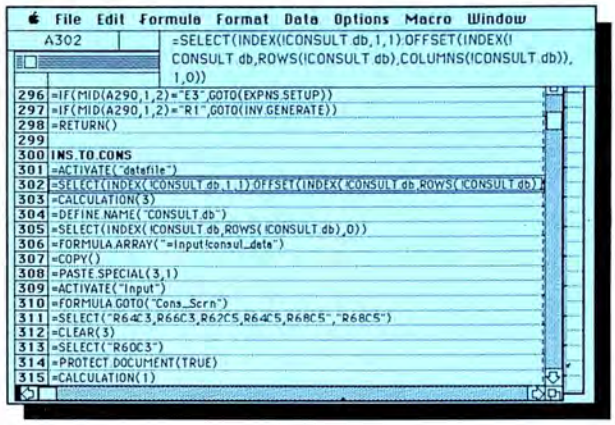

Excel Macro- Expand Cell Range
Excel Macro- Insert Tabs
Excel Macro- Make New File
Excel Macro- Print Summary
File Edit Formula Format Data Options Macro Window
Worksheet1
About Excel
Macro Sheet Commands
Absolute Record/Relative Record
Define Name
Function macros
Run
Set Recorder
Start Recorder/Stop Recorder
Topics
Next
Previous
Cancel
Macintosh SE

JOOK LEUNG

Excel Revisited: The Macro Chapters



Function macros accept data, manipulate those parameters and generally return a result. They can be called by other macros or by worksheet formulas. This function figures out whether the current month is the expiration month for the start group, based on its start month. If it is, it applies the percentage against the number of starts and returns that number. Otherwise, it returns 0.



The meat of any data base management macro is in this function. This SELECT statment highlights an area that is one row deeper than the currently-defined data base range. Use SET.NAME() to re-access the data base range, then select the bottom row of the newly-defined range to accept the data. At that point, users can type directly, be prompted by a series of INPUT() statments that perform the data transfer, or data can be copied from a worksheet formatted specifically for input.

tion or a command, and selecting an Option-Command combination. You must choose FUNCTION if it is a function macro, but you may not need to click the COMMAND radio button.

Clicking the COMMAND button includes that macro's name in the Run dialog that pops up when RUN... is chosen from the Macro menu. Macros that are not specified as command macros execute normally when called by other macros—you just can't use them directly.

It's best to name the macro's label, rather than the cell directly below it. Doing so gives you extra space without having to redefine the macro.

I generally enter the macro's name into a cell, format it bold, then name the cell. At that point, I can set the recorder and continue, or copy in something I've already worked up.

The body of the macro is the set of instructions that follow its name. In simple command macros, these can be the commands captured by the recorder. Function macros, however, require a minimum of one "=ARGUMENT()" statement to specify the data to be manipulated.

More sophisticated macros may contain calls or GOTO's as well. These instructions provide a means of reusing macros like building blocks. Instead of rewriting the same five line instruction every time you need it, you can use a call to "include" that macro in several others.

All macros must terminate with either a "=RETURN()," a "=HALT()," or a "=GOTO()." Function macros include the name of the variable or the value that will be used in the worksheet formula that called it.

Comments can be text in the same column as the macro's code. Anything in the macro that does not have an equals sign will not be executed.

An added plus of this feature is that you can selectively turn off instructions in macros that you are trying to debug. By temporarily removing the equal signs from the formula, you can get *Excel* to ignore specific instructions. Note that some developers prefer to keep all comments in an adjacent column, since a large number of in-line comments could theoretically slow execution.

DOING THE JOB

While worksheets normally recalculate according to something called "natural order," macros begin recalculation at the cell address specified by its range name. Execution occurs cell-by-cell as recalculation continues in a straight vertical line until a =RETURN() or =HALT() is encountered. Only calls to other macros, and GOTO commands cause deviation from this straight and narrow recalculation path.

This bears repeating. Macro sheets look like worksheets, but they're a very different medium. If you need to perform a worksheet-type function with your macro, the data to be manipulated should be transferred to a scratch area of your worksheet, or to a temporary worksheet.

GROWING UP

Macro development follows five basic steps:

1. Design the macro's basic function. It's always best to map out what you want to achieve on paper, before launching into an unstructured mess.

2. Record as much of the macro as you can. There's simply no point in writing everything from scratch. The recorder works too well for that.

Be creative when recording. The process is flexible. You can change from absolute to relative recording throughout the recording process. You can also turn the recorder off, do something that isn't recorded and turn the recorder back on without losing the first instructions you captured. I try to let *Excel* write as much of each macro as I can.

The recorder is extremely useful in capturing appropriate range references. "=SELECT ("rc[1]:r[1]c[14]")" is a range reference that is easily captured with the relative re-

PRESS YOUR EXCEL ADVANTAGE TO THE LIMIT.

Introducing MacSQZ!™ for Microsoft Excel. MacSQZ!, a combination desk accessory and application, makes Excel even better by making spreadsheets smaller and safer. Smaller because MacSQZ! shrinks the size of your spreadsheets on disk by as much as 95%. Automatically, as you use Excel. You get 95% more use from your disk space. With almost 0% effort. Safer because MacSQZ! adds effortless backup and file-level password protection to Excel. It also shows a history of spreadsheet changes and lets you see which spreadsheets are linked together. With MacSQZ! your numbers are safe and secure, and better documented. It helps Excel work harder, so your work is easier.

For only $79.95, MacSQZ! is the small wonder that gives Excel users a bigger advantage. See your dealer, or call for info or to order with a 30-day money-back guarantee. Excel more with less. With MacSQZ!.

(800) 556-1234 Ex. 526
(800) 441-2345 Ex. 526 in CA

EXCEL IS COMPACT,
SAFE, SECURE AND
BETTER DOCUMENTED
WITH MACSQZ!.
FOR ONLY $79.95.

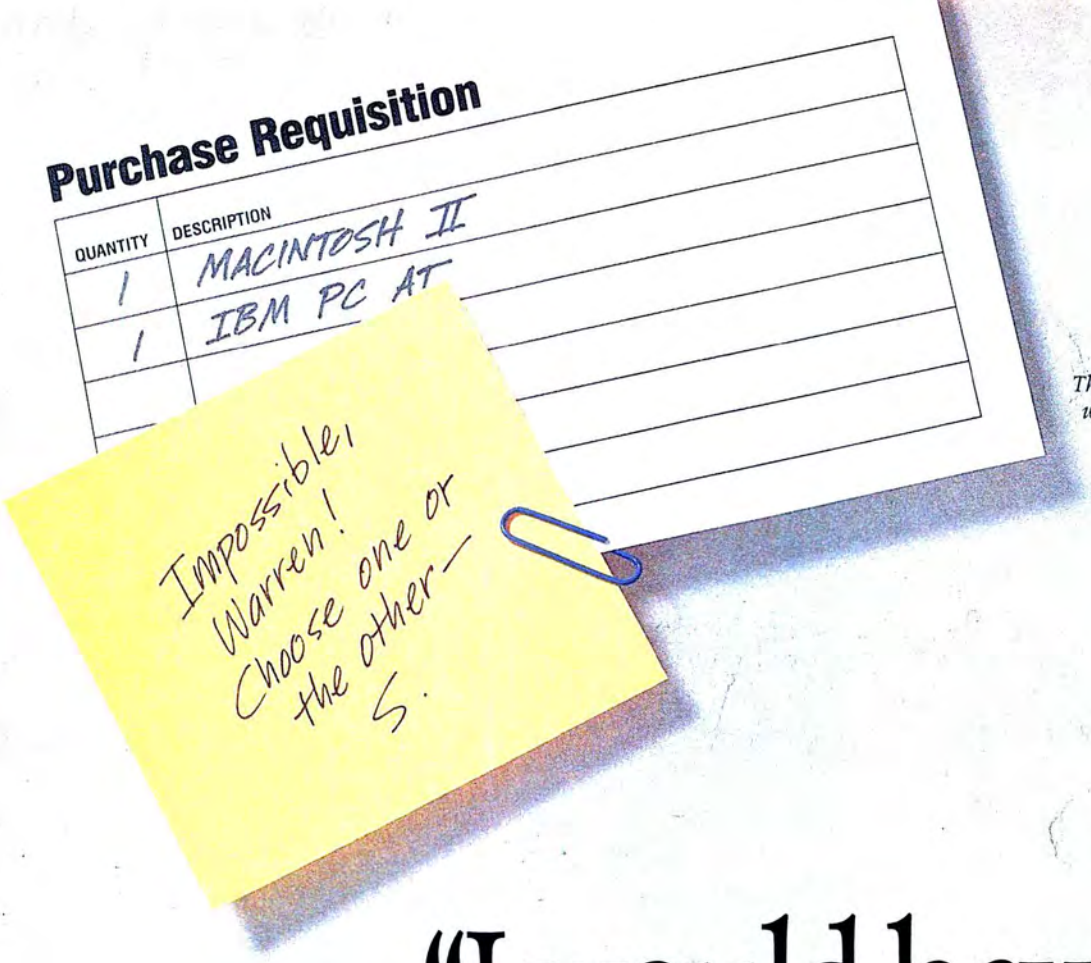
SAVE UP TO 95%
ON DISK SPACE,
BACKUP TIME AND
COMMUNICATIONS COSTS.
ADD PASSWORD PRIVACY,
HISTORY, AND MORE.

MAC SQZ!™

A Better Way To Excel.

Turner Hall Publishing
A Division of Symantec
10201 Torre Avenue
Cupertino, CA 95014 • (408) 253-9600

Please circle 75 on reader service card.



The obvious solution was unrealistic.

"I would have given up anything to use a Macintosh, except my PC software."

AST and AST logo registered, Mac86, Mac286 trademarks AST Research. Apple and LaserWriter registered and Macintosh trademark Apple Computer. dBASE registered trademark Ashton-Tate. Lotus, 1-2-3 registered trademarks Lotus Development Corp. IBM registered trademark International Business Machines, Corp. MS-DOS registered trademark Microsoft Corp. Copyright © 1987 AST Research, Inc. All rights reserved.

"You can't have your Macintosh™ and PC too." Famous last words.

People say, "Where there's a will, there's Warren." Which means I don't settle for words like No. Impossible. Can't be done. No way.

So when I decided I wanted a Macintosh, but didn't want to give up Lotus 1-2-3® or dBASE® III, I naturally set about looking for a way to have it all.

The fastest fix was to buy both an IBM® PC and a Macintosh. "Not possible," said the DP/MIS manager. "Pick one. Any one you want, as long as it's MS-DOS® compatible." Witty guy.

Then I searched everywhere for someone willing to loan me a PC in exchange for executive privileges. I was willing to give up anything, but I kept hearing No. Not interested.

Without another alternative in sight, I decided to surrender and settle for a PC. Then, I discovered an article on AST's newest products—

What I like best about AST's Mac86 and Mac286:

- *I retain the benefits of the Mac desktop while running DOS*
- *I can cut and paste text from both MS-DOS and Macintosh environments*
- *I have full access to DOS programs and data through 5.25" MS-DOS floppy drives*
- *My MS-DOS files share Macintosh hard disk volumes*

MS-DOS co-processors for the Macintosh II and Macintosh SE. The cavalry had arrived.

The article said AST's Mac86™ and Mac286™ allow you to actually run MS-DOS application programs on your Macintosh. Just plug the DOS processor into your Macintosh II—Mac86 into an SE—and load your favorite MS-DOS application software onto the Mac's hard disk. I was sold.

MS-DOS on my Mac looked and felt just like all my other Mac applications—great. I just pointed and clicked. The MS-DOS prompt I know and love appeared in a window on my screen. From there on, I used MS-DOS programs and commands as if I were working on a PC.

Executive Washroom

I would have traded anything for the best of both IBM and Mac worlds.

I even moved Macintosh files into MS-DOS, sometimes cutting and pasting parts from one environment to the other. And when I was finished with my PC and Macintosh files, I stored them both on the same Macintosh hard disk without any clumsy file transfer procedures to slow me down.

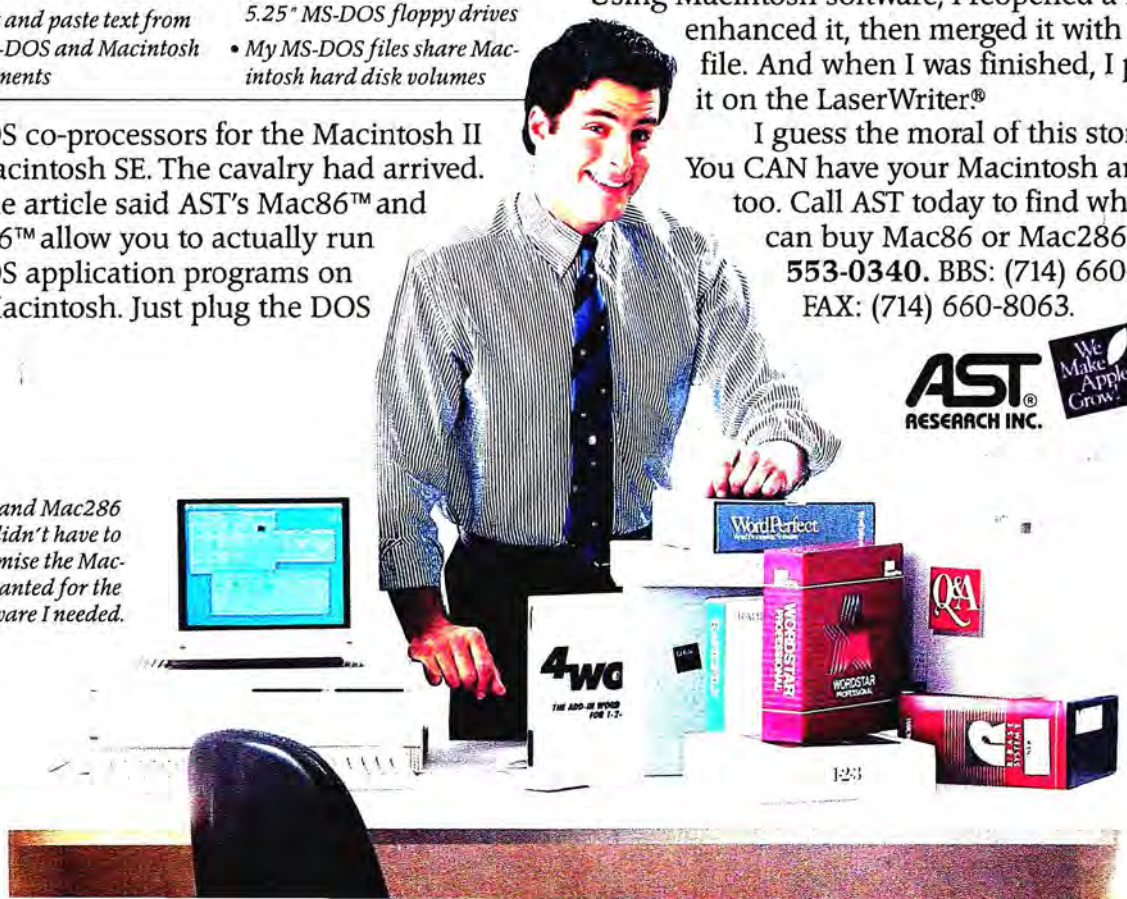
Back in the Macintosh environment, I still had immediate access to all of my PC files. Using Macintosh software, I reopened a PC file, enhanced it, then merged it with a Mac file. And when I was finished, I printed it on the LaserWriter®.

I guess the moral of this story is: You CAN have your Macintosh and PC too. Call AST today to find where you can buy Mac86 or Mac286. **(714) 553-0340.** BBS: (714) 660-9175. FAX: (714) 660-8063.

AST® RESEARCH INC.

We Make Apples Grow!

Mac86 and Mac286 meant I didn't have to compromise the Macintosh I wanted for the IBM software I needed.



cord function. Writing it from scratch, you might have to try the reference a few times, or count a few cells in order to get it right.

The SELECT example uses a relative reference to the current active cell. On the other hand, there will be times when you want to select a specific range, which might change in shape at some later date. In such a case, it's best to select the specific range *name,* rather than the absolute reference to the range. You can record a "=FORMULA.GOTO()" by choosing that menu option. In all macros that I have tested, this has the same effect as "=SELECT()," which cannot be recorded to capture the name of the range you are selecting.

3. Enhance the macro with non-recordable statements, such as if/then else logic and calls to other macros. It's important to understand that the recorder will record absolute references or relative references, depending upon your menu selection. If you activate a worksheet, the macro records the specific name of the worksheet. If you want a more generic macro, you may need to revise that part of the code. =ACTIVATE.NEXT() and =ACTIVATE.PREV() are two commands that can be very useful in allowing one macro to serve several worksheets.

When selecting a range with your macro, the select command takes the form "=SELECT(*worksheet.name !range.name*)." In this standard form, such a macro command would only work for the worksheet specified by worksheet.name. If you use the form "=SELECT(!*range.name*)," the macro works for the active worksheet, so long as that range name has been defined.

4. Test what you've got.

5. Revise and test again. This step repeats until you've got exactly what you want.

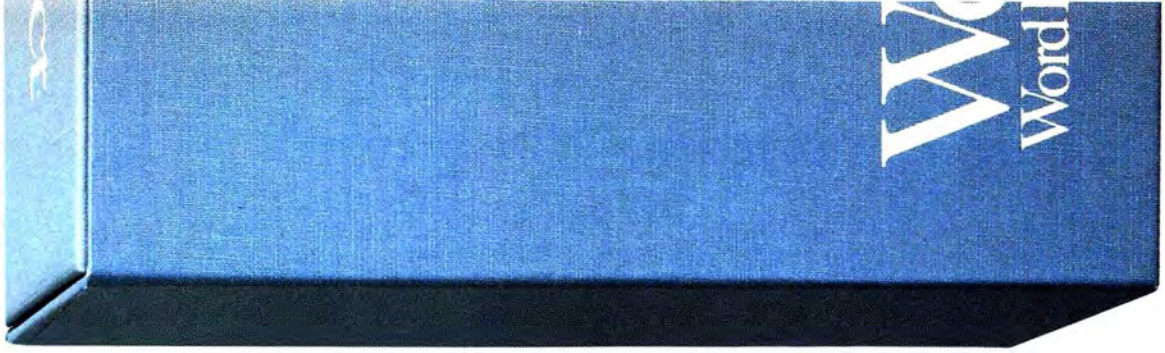
Of course, Murphy's Law prevails. Unless the macro is very simple, you may need to tweak it several times before it will work under all conditions.

TOOLS OF THE TRADE

Once you have the basics down, you have to deal with bugs. Keep a cool head and approach the problem as you would a puzzle. Try to narrow down the source of the bug and

Entry Macro

	A		B
1		1	
2	ENTRY MACRO	2	An "interface engine" macro. Prompts user and
3	Step 1: insure column 1 entry.	3	transfers results with formatting...
4	=DEFINE.NAME("location")	4	Defines a temporary name for the location of the active cell
5	=COLUMN(!location)	5	Determines the column of the active cell.
6	=A66-1	6	Subtracts 1 from that column number.
7	=SELECT("rc[-"&A67&"]")	7	Select is using the concatenation function. Uses A19's value to decide how
8		8	many columns to back up.
9	End of column 1 routine...	9	
10	=INPUT("Enter NAME",2)	10	Prompt for name entry.
11	=IF(NOT(A71),HALT())	11	Stop, if the user clicked cancel.
12	=FORMULA(A71)	12	Pass the entered data back to the worksheet.
13	=SELECT(,"RC[1]")	13	Move over 1 column.
14	=INPUT("Enter address",2)	14	
15	=IF(NOT(A75),HALT())	15	
16	=FORMULA(A75)	16	
17	=SELECT(,"RC[1]")	17	
18	=INPUT("Enter zip",2)	18	
19	=IF(NOT(A79),HALT())	19	
20	=FORMULA(A79)	20	
21	=FORMAT.NUMBER("00000")	21	Format the data before moving on.
22	=SELECT(,"RC[1]")	22	
23	=INPUT("Enter home phone",2)	23	
24	=IF(NOT(A84),HALT())	24	
25	=FORMAT.NUMBER("### 000-0000")	25	Another formatting instruction.(Note custom format.)
26	=FORMULA(A84)	26	
27	=SELECT(,"RC[1]")	27	
28	=INPUT("Interested?",2)	28	Calls the function macro "yesnomaybe", with parameter in A58.
29	=IF(NOT(A89),HALT())	29	
30	=FORMAT.NUMBER(""YES"";""MAYBE"";""NO"")	30	
31	=yesnomaybe(A89)	31	
32	=FORMULA(A92)	32	
33	=SELECT(,"RC[1]")	33	
34	=SELECT("R[1]C[-13]")	34	Down 1 row, left 13 columns.
35	=ALERT("Another?",1)	35	Prompt to continue...
36	=IF(NOT(A96),HALT())	36	
37	=GOTO(A71)	37	Loop back to the beginning...
38		38	
39	yesnomaybe	39	
40	=SET.NAME("result",0)	40	Initialize the result code.
41	=ARGUMENT("input",2)	41	Text parameter called "input"
42	=IF(input="y",SET.NAME("RESULT",1))	42	Check the input, assign the result code.
43	=IF(input="N",SET.NAME("RESULT",0))	43	"
44	=IF(input="M",SET.NAME("RESULT",-1))	44	"
45	=RETURN(result)	45	Return the result.



The best is yet to come.

WordPerfect for the Macintosh.
Landing in October on dealers' shelves everywhere.

Please circle 160 on reader service card.

replicate the event. Once you think you know where it is, selectively switch off any non-essential code until you have verified the source of the problem.

At that point, the fun begins. Work up a solution, test it and try again until you get it right. The following techniques can be quite useful in the debugging process.

The STEP function tells *Excel* to display a dialog box indicating the command about to be executed before executing each line of code. Buttons allow you to continue stepping through the macro, halt execution altogether or continue without the step function.

By placing STEP in your macro, you can be sure that it gets invoked at the right point. But you can also invoke step mode on an ad hoc basis by holding down the Command key and hitting a period.

HALT is used in a number of non-debugging circumstances, but putting a HALT in your code at a strategic point guarantees that execution doesn't go any farther.

You can disable dubious macro commands by removing the equals sign. *Excel* will then treat that instruction as a comment until you edit the cell and put the equals sign back.

MACRO ETIQUETTE

I've already covered some of the major etiquette issues in macros, such as using range names often, choosing a name that implies the macro's function, and using bold labels.

In addition, it's helpful to write complex macros as a family of smaller macros that are called in sequence by a single main macro. This makes tracing the logic far easier than with a single long and complex statement, or worse, when one macro calls another, which calls another, which calls two more and so on.

Assume you'll get amnesia tomorrow, and use labels and comments liberally. It's better if you don't need to go to a separate set of notes.

Once you've written a macro, it's a good idea to review it for "idiot-proofing." If the macro is not for your exclusive use, you'll often find that your user base may not apply the technology as you intended.

The goal is to make your macros "fail-soft." When things go wrong, your macro should be unable to do disastrous things such as deleting unintended rows and columns.

As your macros become more sophisticated, they'll become subject to interesting problems. For example, you may create a model that uses several linked worksheets instead of a single large sheet. If the user closes one of the worksheets—instead of moving it out of the way—your accumulator macro will fail when it tries to activate that worksheet.

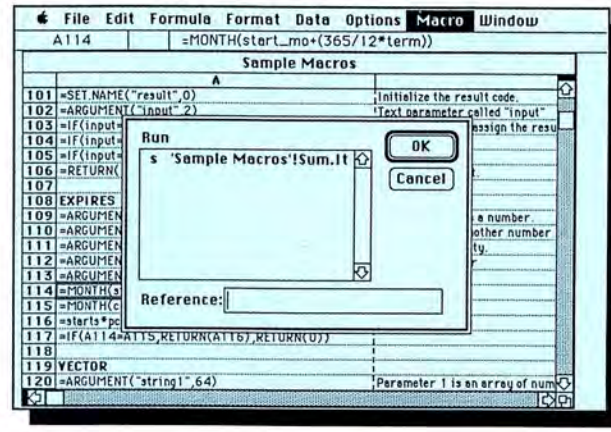
The solution is to set an error trap that branches to a macro called *Load-.Worksheet* just before issuing the ACTIVATE statement. In that way you can avoid the potential problem.

There are a number of other such ideas which will simplify your macro development life. Use of range names can't be stressed enough. Range names are a powerful and fluid shorthand for a collection of cell references. A macro that uses range names only can be used successfully on two worksheets with very different topologies.

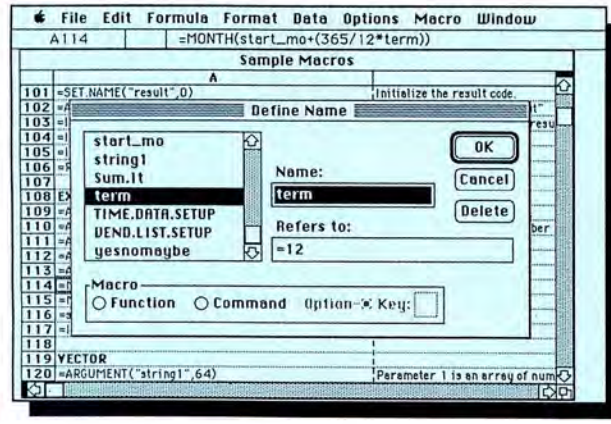
Continuing in the tradition of fluidity, it makes a great deal of sense to avoid the use of absolute references in your macros whenever possible. Sometimes such references are necessary, but remember that changing the worksheet in such cases may mean changing the macro sheet as well.

A very useful technique for controlling user input is to lock all cells that you don't want the user to touch. When you protect the document, pressing the Enter key will move the user from left to right and top to bottom of the unprotected cell region only.

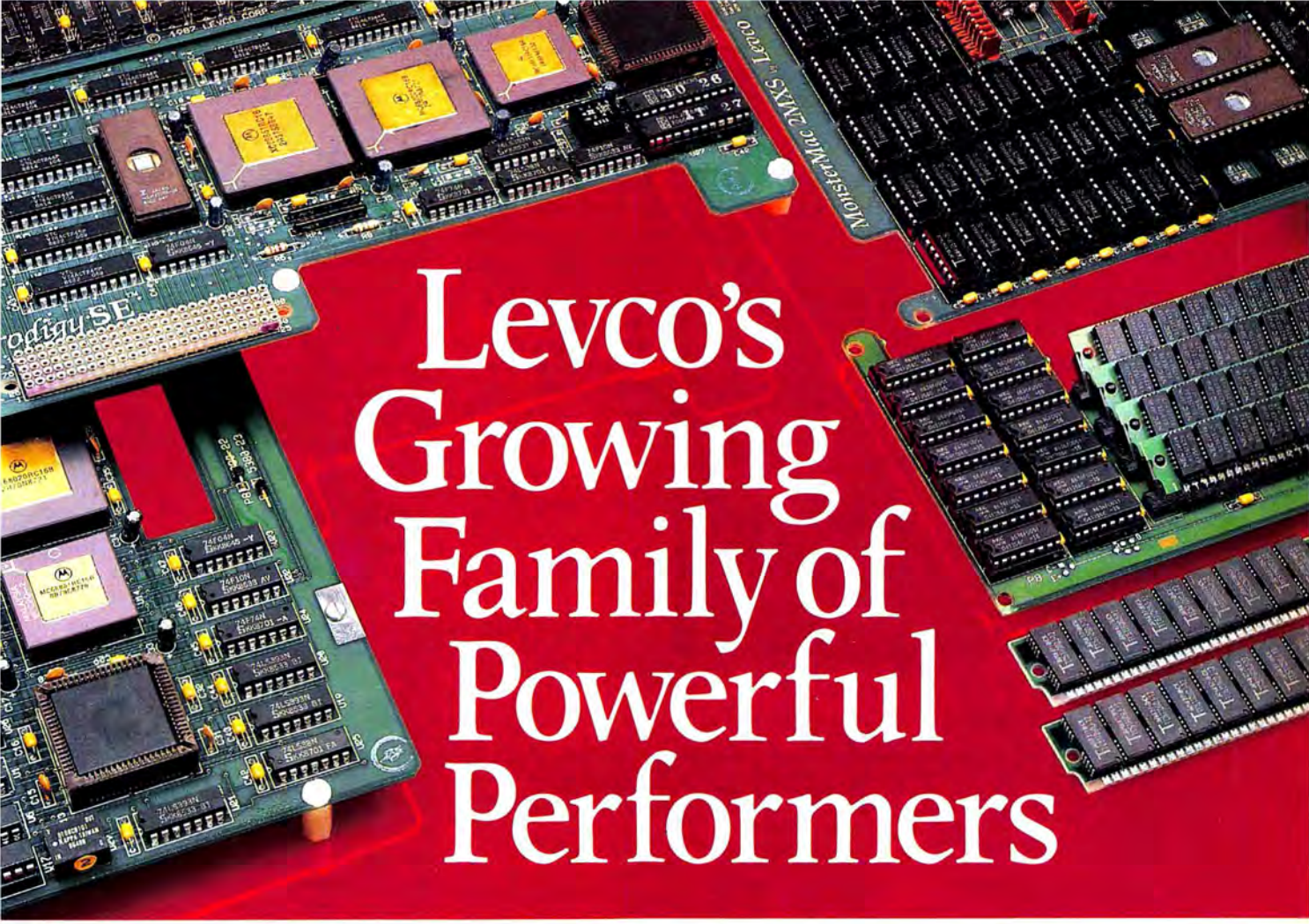
Suppose that you have two separate areas on the same worksheet, and you want the user to work with each exclusively. You'd have to ensure that only one of those areas' cells were unlocked, and switch protection on. When the time came to



When you define the name of a macro, you are presented with radio buttons which specify the type of macro. The command radio button determines whether the macro's name will appear in this dialog box. Even though there are numerous macros defined on the sheet, only "Sum.It" appears.



The SET.NAME() function and its effects are displayed here. While most of the names in the define name dialog contain range references like "=A17", set names and function macro arguments contain values instead.



Transform Your Macintosh™ into a Super-Productive Workstation.

High performance runs in the family. Levco has the track record to prove it. So if you've decided to boost the productivity of your Macintosh ...

Think Fast. Super-powerful, 68020-based Prodigy upgrades make any Macintosh run 4-8 times faster. Calculation-intensive programs blaze up to 100 times faster on the Prodigy's 16MHz 68881 math coprocessor, creating a super-productive workstation for desktop publishing, business or engineering. Prodigy SE™ and Prodigy Prime™ for the Macintosh SE and Plus can expand to 32 megabytes and feature an optional 68851 PMMU. Even a humble 128K or 512K Mac is faster than a Macintosh II with Levco's 68020-based Prodigy 4™. And if you need storage as well as speed...

Think Hard. *OverDrive* 40™, the first and most reliable 40-meg internal hard drive for the Macintosh, has a 26-millisecond access time to provide speedy, convenient storage.

Think Big. Expand your Macintosh horizon with a 19" big screen high-resolution monitor. Big memory is yours, too! Boost your Macintosh II to 8 megabytes or quadruple your Macintosh SE's memory with Levco's one-megabit SIMMs. Your Macintosh Plus gets 2 or 4 comfortable megs with a One Plus One™ RAM upgrade, and MonsterMac™ boards give your 128K or 512K Macintosh a 25% speed boost, 2 megs and a SCSI port.

Speed. Memory. Power. Levco's family of performance upgrades gives you even more. Like proven reliability. Unparalleled software compatibility. Easy, plug-in or secure, clip-on installation. So if you want to boost the productivity of your Macintosh, don't think twice. Join a family of winners with Levco's powerful Macintosh performers.

Authorized Value Added Reseller

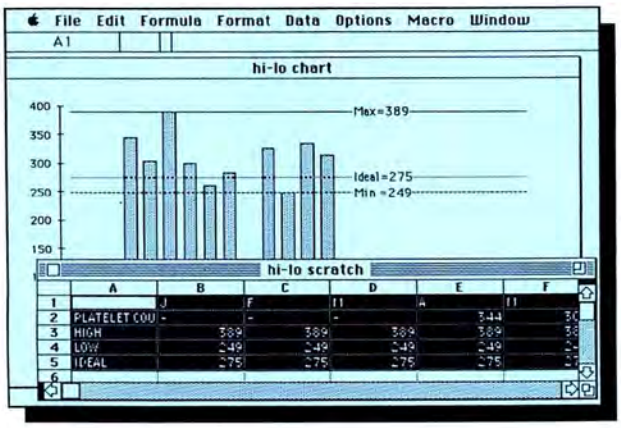
Macintosh and Macintosh SE are trademarks of Apple Computer Inc.

Levco
6160 Lusk Blvd.
Suite C-203
San Diego, CA 92121
(619) 457-2011

Please circle 209 on reader service card.

use the other area, you'd unprotect the document, lock the cells in the first area, unlock the cells in the second area, then re-protect the document.

If you need something like this, be sure that you *don't* use password protection for the worksheet, otherwise the user will be prompted for the password when you use the "=PROTECT.DOCUMENT (FALSE)" command.



The scratch sheet as it appears at the end of execution of the Chart Maker macro with the resulting chart.

In many cases, you can achieve the same result from a macro call as you can from a GOTO. The macro call is a more desirable convention in these cases.

The main reason for this is the prevention of a tragic programming ailment known as "spaghetti code." Using a call ensures that you can always find the begin and end point of each transition to another macro.

APPLIED MACROS

Now that we've covered the basics, several specific macro examples are in order. Here is a small sampling of macro types and techniques that have proven extremely useful in my day-to-day work.

One of the most common things you do with a spreadsheet is manipulate text. Macros can provide a very effective means of controlling text entry. For example, labels in a worksheet that's been downloaded from a bank-at-home service may contain leading spaces that you don't want. Often, dates aren't *Excel* format dates. You could manually edit every entry, but macros can do the job more quickly and efficiently.

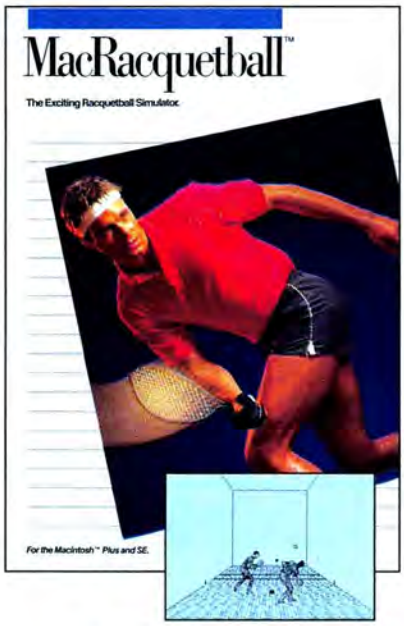
I've found a wonderful use for *Excel* in conjunction with data bases: pre-processing. I received a text file which had been exported from an MS-DOS-based computer recently. The data was not ready for use, because it contained no field delimiters, just a carriage return at the end of each record.

In order to import that information into my Mac data base, I had to insert tabs into the text at the end of each field. Since *Excel*'s "save as text" function separates each cell's text with a tab, I simply needed to create a macro that split each line of text into several cells' worth of segments. The resultant text file could be reviewed for cleanliness before importing into the new data base program.

The secrets to handling text in *Excel* are the MID, concatenation (&), and SEARCH functions. By combining these functions, you can add or delete, and perform search-and-replace with any text in your worksheet.

Chart.Maker Macro

	A	B
1	**Chart.Maker/c**	This macro executes, using Option-Command-c.
2	=SELECT("RC:RC[28]")	Select 28-column range beginning with the active cell.
3	=DEFINE.NAME("chart.info")	Name that range.
4	=ERROR(TRUE,GET_SCRATCH)	If an error ocurrs, branch to "GET_SCRATCH"
5	**>CONTINUE(after GET_SCRATCH)**	Range name "CONTINUE" is here.
6	=ACTIVATE("Hi-Lo Scratch")	Activate the window.
7	=ERROR(TRUE)	Return to normal error checking.
8	=SELECT("R1:R16384")	Select the entire scratch worksheet.
9	=CLEAR(1)	Clear all...
10	=SELECT("R")	Select the first row/first cell.
11	=FORMULA("='DATA FILE'!headers")	Enter external reference formula.
12	=SELECT("R1C1:R1C29")	Expand selection across the row...
13	=FILL.RIGHT()	Relative copy of the external reference formula.
14	=SELECT("R2C1")	Select cell A2.
15	=FORMULA("='DATA FILE'!chart.info")	
16	=SELECT("R2C1:R2C29")	
17	=FILL.RIGHT()	
18	=SELECT("R3C1")	Select cell A3
19	=FORMULA("=R[-2]C[1]")	Cell formula points to B1
20	=SELECT("R4C1")	
21	=FORMULA("=R[-3]C[2]")	
22	=SELECT("R5C1")	
23	=FORMULA("=R[-4]C[3]")	
24	=SELECT("R3C6")	
25	=FORMULA("=R2C2")	Absolute reference formula.
26	=SELECT("R4C6")	
27	=FORMULA("=R2C3")	
28	=SELECT("R5C6")	
29	=FORMULA("=R2C4")	
30	=SELECT("R3C6:R5C29")	
31	=FILL.RIGHT()	Fill right "duplicates" the formulas across
32	=SELECT("R1C1:R5C29")	the selection range.
33	=COPY()	
34	=PASTE.SPECIAL(3,1)	Paste values only. ("Freezes" the values.)
35	=SELECT("C2:C5")	Select columns B-E.
36	=EDIT.DELETE(1)	Delete the columns.
37	=SELECT("R1C1")	Cell A1
38	=CLEAR(3)	Blank this cell.
39	=SELECT("R1C1:R5C25")	Select the entire data matrix, header info and all.
40	=NEW(2)	Create new Chart file.
41	=SIZE(465,237)	Resize the chart.
42	=RETURN()	
43		
44	**GET SCRATCH**	Recovers the scratch file, in case it was
45	=OPEN("Hi-Lo Scratch")	accidentally closed.
46	=GOTO(CONTINUE)	Return to the point in the main macro where the error
47		ocurred.

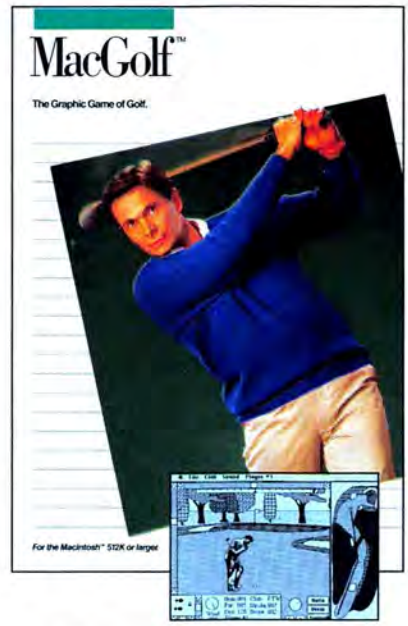


The hottest sport on a court – the hottest game a Macintosh™ can handle.

Even if you've never been on a racquetball court, you'll spark to the excitement of this challenging simulation.

MacRacquetball turns your Macintosh screen into a full perspective 3-D display of court, players and ball. With the mouse, you have complete control of player position, ball placement, ball speed and shots. Two people can play the same game over AppleTalk® or modem.

Superb graphics give MacRacquetball completely convincing realism. There are more than 1000 frames of ultra high speed digitized animation. It's one racquetball court that's always open when you're ready to play.

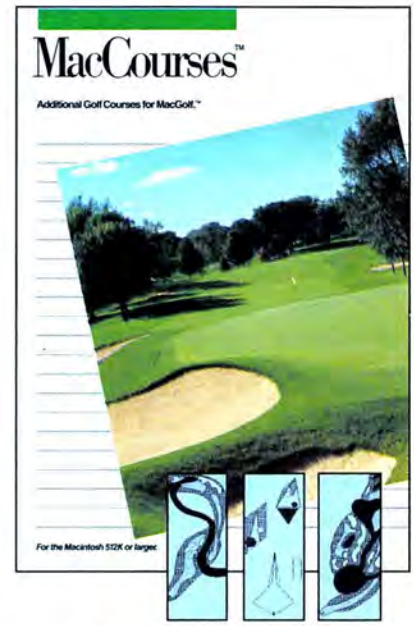


Enthusiastic players everywhere have made MacGolf the best selling Macintosh game ever.

MacGolf puts you in the picture, a full perspective 3-D simulation of realistic golf action. You match your skills against fairways, roughs, bunkers, water hazards, sand traps and trees.

MacGolf gives you a player's eye view of the course, in any direction, and an aerial overview of each hole. You have complete control of your position, ball placement, ball speed and direction, and selection of all 14 clubs. Digitized graphics and sounds add to the excitement.

MacGolf is so close to the real thing it will improve your golf game. And by the time you've reached the eighteenth hole you'll know you've been in a real contest.



When you have the best selling Macintosh game in the world, what do you do for an encore?

Here's new turf for adventurous MacGolfers. These are courses to conquer for mouse wielding pros who have taken the measure of the original MacGolf courses.

If you liked MacGolf, you'll love what MacCourses brings to the screen. Four new 18 hole, par 72 courses: Cedar Creek, Golden Sands, Thunder Ridge and PCAI International. The fairways, traps, hazards, and putting greens of MacCourses are in a whole new league.

If you thought MacGolf was good training for the outdoor game, MacCourses should turn you into a pro. Get MacCourses now, use it when you're ready – you never know when you'll need the challenge.

PCAI™

©1987, PCAI/Practical Computer Applications, Incorporated 612/427-4789
Macintosh and AppleTalk are trademarks of Apple Computer, Inc.

Please circle 101 on reader service card.

Dates in *Excel* display text in numerous formats, including the ubiquitous "mm/dd/yy" format. But *Excel* sees that date quite differently than we do. Each day since January 1, 1904 has been serialized so that today's date is somewhere near day 31,000.

In addition, *Excel* includes the time as part of a serial number by appending a decimal fraction to each day's serial number, based on the number of seconds past midnight that corresponds to that time.

When data is imported to *Excel* from an outside source, it's not correct to assume that the text string "6/15" is a date. It might simply be a fraction.

Another problem is that other systems don't always use "mm/dd/yy." A useful macro would convert a known date string format into an appropriate *Excel* date.

Macros that execute once can be very effective, but converting a column of figures which could vary in length really requires the use of loops. By using =GOTO(), you can repeatedly direct a macro to begin execution again. If you include conditional logic, you can also make the macro smart enough to stop itself after the job is done.

Often, you know how many times you want a loop to execute, or you want to count the number of times that a loop has been repeated. SET.NAME() allows you to create or use a variable and assign a value to it. Unlike DEFINE.NAME(), which assigns a cell reference to a given range name, the function assigns a specified *value* to the range name provided. SET.NAME's values are not stored in any cell in the macro sheet.

When you save the macro sheet, SET.NAME's values are still remembered, because those values are part of the range name table, something that is created and managed by *Excel*.

If you include a statement like "=SET.NAME("Counter", Counter+1)" in your loop, you'll be able to determine how many times the loop executed.

The ERROR() command is quite powerful. Normally, *Excel* interrupts macro execution when an error is encountered, then prompts you for appropriate action. The Error command can be used to override normal procedure in several ways.

First, error detection can be turned off completely. In special cases, this may be exactly what you want. The syntax for this mode is "=ERROR(FALSE)." Error detection can be reinstated by using "=ERROR(TRUE)."

I find the second form of this command far more useful, though. By using the form "=ERROR(TRUE,*patch.code*)," *Excel* forgets about the macro that produced the error and begins execution of the patch code. In effect, this is a GOTO, so you'll have to add a GOTO at the end of your patch code if you want the offending macro to continue execution to completion after resolving the problem.

Once you have specified patch.code as the macro to execute in the event of an error, patch.code will run with *any* error. Be sure to cancel the order when you need to by issuing another "=ERROR(TRUE)."

There are two types of dialog in *Excel:* INPUT statements and ALERTs. Inputs are two-way communications which result in storing data in the macro sheet, while alerts simply provide information for the user. In the event that a user cancels an alert, the alert function "knows" that the cancel button was selected.

Each of these dialogs include a text portion and a type in the format "=INPUT(*prompt,type,title*)," or "=ALERT(*prompt,type*)." Most of the time, you will write your dialogs individually, but it is worth noting that the prompts, type and title could be passed as parameters to a function macro that generates the appropriate dialog.

Excel has limited control over the chart window. You can use the various past functions to add series data to a chart, but you can't selectively remove unwanted series, for example. Given that, it's best to have your macros handle charts indirectly, by manipulating a worksheet that contains the chart data.

You can save a specific chart, and use the macro to open it as needed. You can also use the Default Format menu option to lock-in a custom format for all newly created charts.

Data base management is particularly interesting in *Excel*. Often, you want to add each new data base entry to the bottom of the current data base. The problem is that as you add new records *Excel* won't automatically expand the data base range for you.

The next data base problem is entry. While raw spreadsheeting is nice, it's nicer to have entry screens in some cases. An entry macro could be devised which provides an intermediary entry screen, or a more easily managed macro would offer a series of prompts, then transfer the data to the worksheet. Associated with these functions are sorting macros, label generators and other possibilities.

AND IN THE END

Writing macros is programming, but programming does not have to be difficult. The key is in breaking the "big picture" down into manageable small parts, solving each step as its own small macro, then stringing them all together with a main macro that calls the others. Don't be afraid to experiment!

Sum.it Macro

	A	B
1		
2	Sum.It	Writes a sum formula in the active cell.
3	=INPUT("select an area.",0)	Prompt the user to drag over an area. Type is Formula.
4	=MID(A11,2,(LEN(A11)-1))	Slice the "=" sign off the formula.
5	="=sum("&A12&")"	Construct a sum formula using the string in A3.
6	=FORMULA(A13)	Enter the sum formula into the active cell.
7	=RETURN()	

LOUIS BENJAMIN, AUTHOR OF *THE COMPLETE BOOK OF EXCEL MACROS,* IS A BROOKLYN, NY-BASED SOFTWARE DEVELOPER SPECIALIZING IN *EXCEL* AND *OMNIS 3* BUSINESS APPLICATIONS.

FINALLY, A $2600 LASER PRINTER THAT PRINTS LIKE A $5000 LASER PRINTER.

WHICH WAS PRINTED ON A $5000 LASER PRINTER? WHICH ON OURS FOR $2600?

To the thousands of Macintosh™ users who find themselves wishing there was a personal printer that lived up to their personal computer.

Including the executives, entrepreneurs, academics and other professionals who have been waiting for an affordable entree into the world of desktop publishing.

General Computer presents the reassuring paradox you see illustrated on these pages:

The first affordable laser printer that prints like it costs thousands of dollars more.

INTRODUCING THE PERSONAL LASERPRINTER.

As the documents shown here demonstrate, the General Computer Personal LaserPrinter™ (PLP™) concedes nothing in printing capability to systems selling for twice its price.

If that still seems hard to believe, consider this. Until now, anyone who bought a laser printer was also buying a computer. Because laser printers have always needed a processor, memory and other hardware to create a printable page.

Our laser printer, on the other hand, eliminates much of this expensive hardware in favor of ingenious software.

Software that allows the printer's imaging to be performed by the computer you already own: the Macintosh. (Either the Macintosh Plus, the Macintosh SE, or the Macintosh II equipped with any hard disk.)

This arrangement also means the PLP is much more compact than other laser printers. (An almost diminutive 16″ x 16½″ x 9″.) And having fewer and simpler parts,

*In Illinois, call (800)854-9737 In Canada, (800) 263-1405. © 1987 General Computer Corp. The General Computer logo is a registered trademark of General Computer Corp. Personal LaserPrinter and PLP are trademarks of General Computer Corp. Macintosh is a trademark of Apple Computer, Inc. Manufacturer's suggested retail price $2599. For dealer inquiries call (617) 499-4961 or (617) 499-4952. The documents above were created with PageMaker 1.2.

much less likely to need repairs.

THE PROOF IS IN THE PRINTING.

As you can see, a case could easily be made for buying the PLP on economics alone. But that would be selling it short.

Because the ultimate measure of any printer is how well it prints.

Like vastly more expensive laser printers, the PLP lets you print scanned photos and illustrations, high-resolution graphics created with software like MacDraw® and Microsoft's® Excel, and otherwise juggle words and pictures until you have them where you want them.

But it also provides valuable assistance even these vastly more expensive printers don't.

Including a choice of Bitstream® fonts limited only by your hard disk's capacity to store them. (Fonts you can adjust to any point size, or fraction thereof.)

A preview feature that lets you review each page in its entirety before you print it.

And a draft mode that lets you rapidly print out works-in-progress for editing and revision by others.

Then, once all the editing and revisions are complete, the PLP quietly provides extraordinary finished output.

Near-typeset quality presentations, memos and reports produced with software like Microsoft's Word and Aldus' PageMaker.® All printed with a new generation of laser printing technology that offers richer contrasts than ever before.

AN INVITATION TO SKEPTICS.

In short, the PLP does for printed communications what the Macintosh did for personal computing.

It provides a sophisticated, yet affordable tool for anyone who needs to manage large amounts of information—and wants to work smarter and more creatively in the process.

So to answer the question we began with: the PLP printed the document that appears on the right.

But you don't have to take our word for it.

We invite you to make your own comparisons through a PLP demonstration at any authorized General Computer dealer. Where you'll also be able to compare another pair of documents that are far easier to tell apart:

A Personal LaserPrinter price tag. And that of any other printer of equal quality.

For the name of the dealer nearest you, call (800) 634-9737.*

GENERAL COMPUTER

Computer Corp. Microsoft is a registered trademark of Microsoft Corp. PageMaker is a registered trademark of Aldus Corp. Bitstream is a registered trademark of Bitstream Inc. MacDraw is a registered trademark of Apple Computer, Inc.

Please circle 81 on reader service card.

The Electronic Signature

Use Fontographer to create a custom font of your signature.

BY FRED TERRY

I WRITE REAMS OF LETTERS AND always get tired of signing my name. Initialed rubber stamp signatures remind me of creeping bureaucracy, and I avoided that in the past by using a *MacPaint* image of my signature stashed in the Scrapbook. When my company acquired a LaserWriter, the bit-mapped image looked rougher than my actual John Hancock next to the smooth LaserWriter fonts. To solve this problem I created a PostScript version of my rather sloppy signature with *Fontographer* for those occasions when I don't want to scrawl my name in the conventional fashion.

SIGN ON THE DOTTED LINE

Before you do anything else, you should make a computer copy of your signature. Since any Paint file can be used as a template in *Fontographer,* you can get your signature into PostScript as a Paint image. You can digitize the sample you want to use for your signature font and store the digitized signature in a *MacPaint* format file. If you have an electronic graphics pad, you can sign your name with a pen, or, if you are very good with the mouse, you can write your name with it.

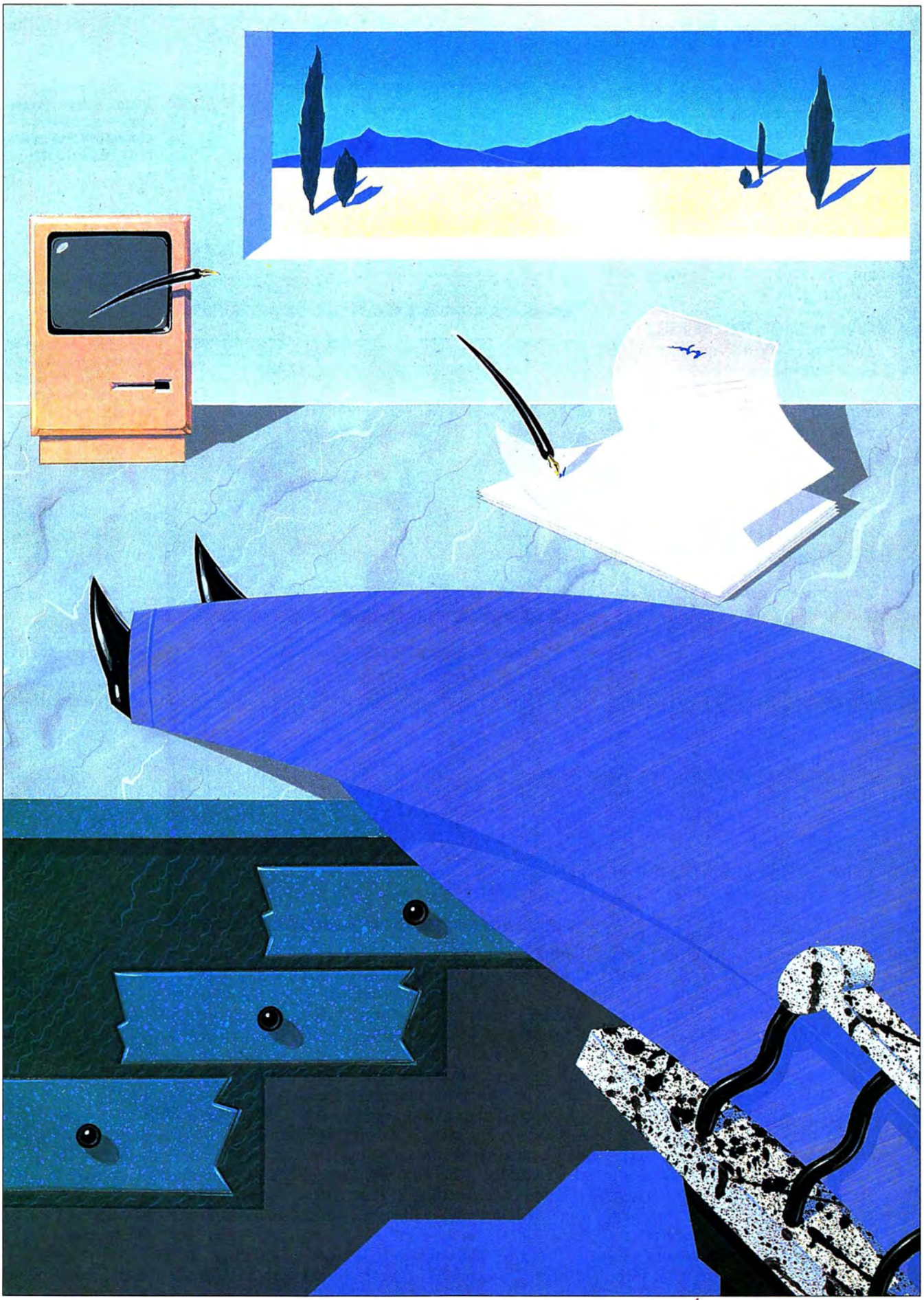
Once you have your signature in electronic form you will need to create a font file for it. *Fontographer* opens with a file selection window, so you will need to click the CANCEL button and select NEW FONT from the File menu. This brings up the Font Attributes dialog where you specify the PostScript font's ascent, descent and leading sizes, the family ID and the number of characters it will contain.

It's a good idea to decide on the characters' ascent and descent before you open your font file, since they define the em square in a font. This is particularly important if you're going to use a printer other than a LaserWriter. Setting a larger em square gives you more precision when you are defining a character, but the font will be the same size as one with a smaller em square. Of course, the paupers among us will be lucky to work with a LaserWriter, and it can't take advantage of the greater resolution.

You will also need to decide on a Family ID number. Apple has reserved font numbers less than 128 for its own use, so you can choose any number between 128 and 255. *Fontographer* always defaults to 200. But it is a good idea to change the number so each font you create will have a unique number.

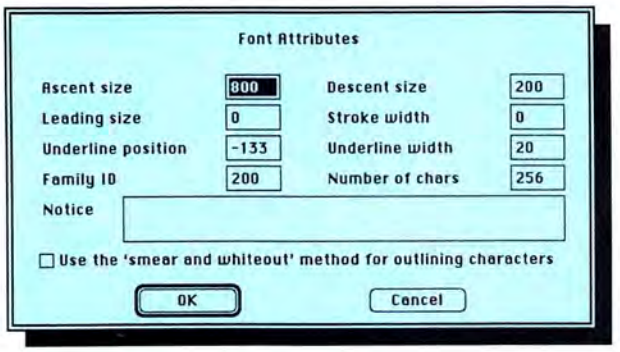
After you have defined the attributes of your font, you're ready to paste the Paint image into *Fontographer.* This can be accomplished in several different ways. You can open your Paint program, copy the signature, and then load *Fontographer.* You can also copy your signature into the Scrapbook where it is easily gotten to. You could load *Fontographer* and your Paint program into *Switcher* partitions, but this is only practical if you're going to be moving a number of graphics between the two.

Paste the image into a Character window. You can split the signature into its component characters, but it

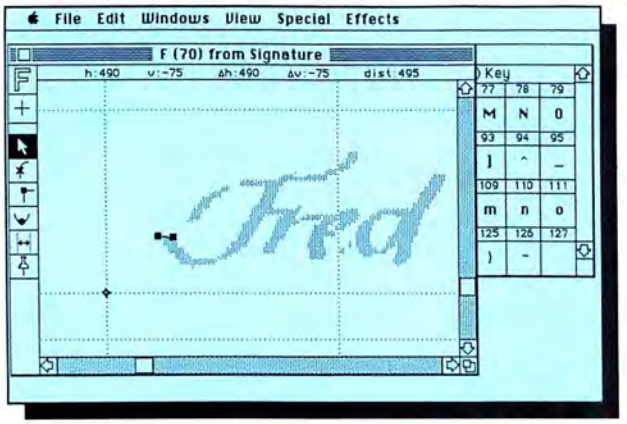


MORGAN PICKARD

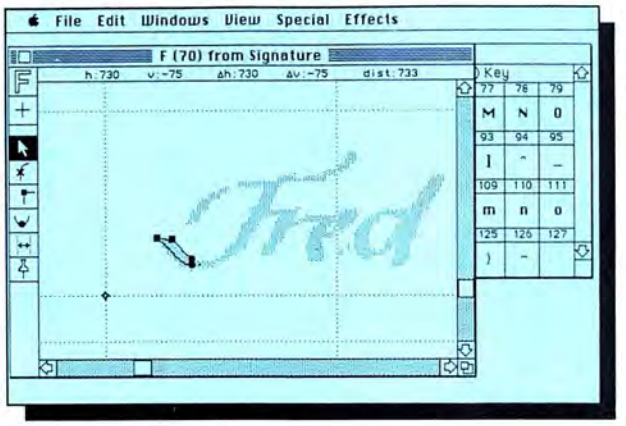
is easier to keep the flow of the signature by leaving it in one piece (this also sidesteps the issue of spacing). The image appears in the background and probably won't be where you want it when you paste it in. You can adjust the image in the Character window by selecting CHANGE PLANE from the Special menu, clicking on the image, and then dragging it.



The Font Attributes window in *Fontographer* lets you set the ascent, descent and leading size of the PostScript font.



The corner points are set with the Corner Tool (the 90° angle in the palette on the left side of the character window).



Once the corner points are set, the curve points are added to follow the curve of the background image.

MAKING A NAME FOR YOURSELF

Creating a PostScript font with *Fontographer* is nothing less—and yet incredibly more—than drawing the outline of your font. Since I am creating a PostScript version of my signature, I am not going to worry about letterforms. After all, I am only transforming what is illegible in one medium to another. If I were making an entire font, then I would need to plan and draw characters carefully.

Fontographer provides several different tools for drawing the character. I begin by establishing the corners at the bottom of the "F". There is no particular reason for beginning at the bottom (I actually begin with the upper cross-member when I sign my name.) To place a point, I select the Corner Tool and click on the upward swing of the tail. Whenever you place a point, it stays highlighted until you place the next point and the connecting line is drawn between the two.

Once the corner is defined, work up the ascender of the "F" by placing points with the Curve Tool. My experience is that you have to experiment with curve and tangent points and then decide which works best. If adding a tangent point causes the line to curve drastically, try adding a curve point instead. Always add a different kind of point before trying to manipulate the Bezier Control Points to make the line flow the way you want it. Simpler is always better. Because the ascender on my "F" curves, I will add a curve point.

You don't have to wait until you generate the PostScript font to check the shapes of your letters. To see a filled letter as soon as the outline is finished, open the Font Metrics window. You will need to resize the Font Metrics and the Character windows, but you can fit them on the screen to get a preview of your new font. If you have a large screen, the Font Metrics window can stay open in its full size.

If possible, always outline characters in one direction and make them one unit. If the cross on the "F" is a separate box, *Fontographer* leaves a white area where the cross overlaps the ascender. Checking the "smear and whiteout" method in Font Attributes will not always fill in the white area.

Tangent points are good for making smooth curves between corner and curve points. There is a slight curve in the penstroke of the "r" that I want to follow. If I add a curve point, the line will bow out more than the stroke. A tangent point is good here to pull the straight line out.

CHOOSING A PATH

If your name has a letter with a closed loop in it, like an "o" or an "e", as mine does, it may be filled when you look in the Set Metrics window. If it is, select GET INFO from the File menu and click in either the "CW" or the "CCW" radio button—depending on which

"I thought I was hearing things when he said speed alone didn't make a fast drive."

It didn't make sense. I asked my Apple® dealer for a fast drive for my Macintosh.™ And he responded, "There are fast drives and there are fAST™ drives."

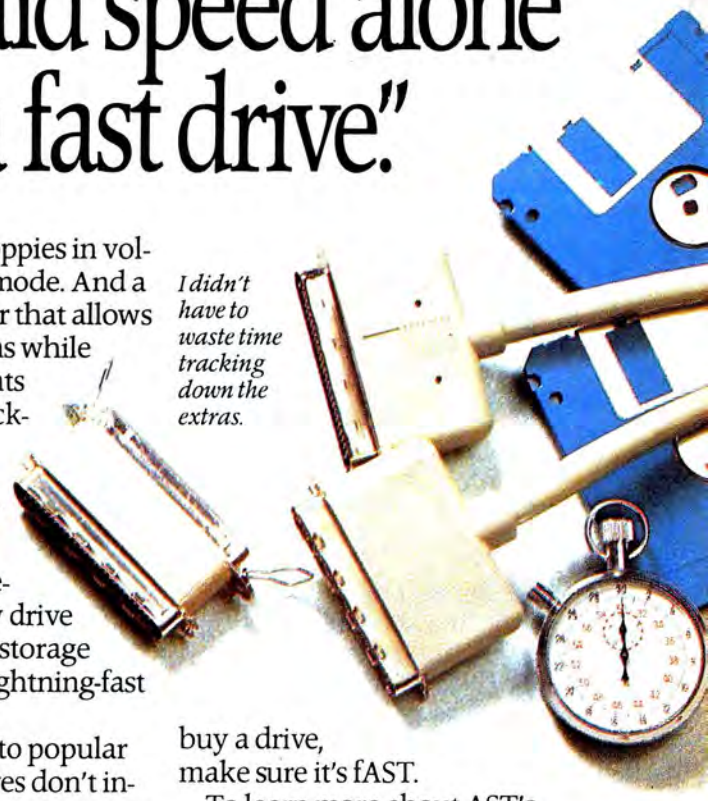
"Benchmark tests prove fAST drives are fast all right. But even more, they're loaded with standard features other manufacturers charge as expensive options."

He pointed out that only a fAST drive comes equipped with extras that let you come out ahead. Standard features like DataVault,™ AST's proprietary utility software that backs up my data to tape or floppies in volume or incremental mode. And a software print spooler that allows me to run applications while my LaserWriter® prints documents in the background.

Another standard feature of every fAST drive is its advanced disk optimizer that reorganizes data on my drive to conserve valuable storage space and facilitate lightning-fast file access.

And contrary to popular belief, most drives don't include cabling to connect a drive to a Macintosh or another SCSI device. AST does, and again, free of charge.

Of course, the greatest extra is AST's track record for quality and reliability. Which, when added together with AST's other fAST features, points to one very certain conclusion: When the time comes to buy a drive, make sure it's fAST.



I didn't have to waste time tracking down the extras.

To learn more about AST's fAST family, call **(714) 553-0340,** BBS: (714) 660-9175. FAX: (714) 660-8063. Or visit your local AST-authorized dealer today.

AST® RESEARCH INC.

We Make Apples Grow!

AST and AST logo registered and DataVault, fAST trademarks AST Research. Apple and LaserWriter registered and Macintosh trademark Apple Computer, Inc. Copyright © 1987 AST Research, Inc. All rights reserved.

More Macintosh™ . . .

. . . for less!

RamPlus™

Memory upgrade kits for the Macintosh Plus™ — Up to four megabytes of RAM, instantly accessible to all your applications with no modification. Completely non-destructive installation uses existing memory expansion sockets. All RamPlus and Ram II™ kits use the new 1 Megabit CMOS DRAM technology.

- **RamPlus 2** - Two megabytes† $299
- **RamPlus 4** - Four megabytes† $799

†*Not guaranteed compatible with internal devices.*

RamII

Memory expansion kits for the Macintosh SE and Macintosh II — Up to 8 megabytes additional memory for the powerful new members of the Macintosh family. Install in minutes, and are completely compatible with all internal enhancements.

- **Ram II** - Two megabytes $599
- **Ram II + II** - Four megabytes $999

SCSI-Mac™

SCSI port for the Macintosh 512e Completely Apple compatible. Non-destructive installation. Works with all SCSI devices. Installation Tool included. $99.95

• 2 year full replacement warranty •
• Shipment within 72 hours •
(24 hour shipment available)

Terms:

- Prices reflect cash discount for prepaid orders.
- MasterCard, Visa, and AMEX accepted.

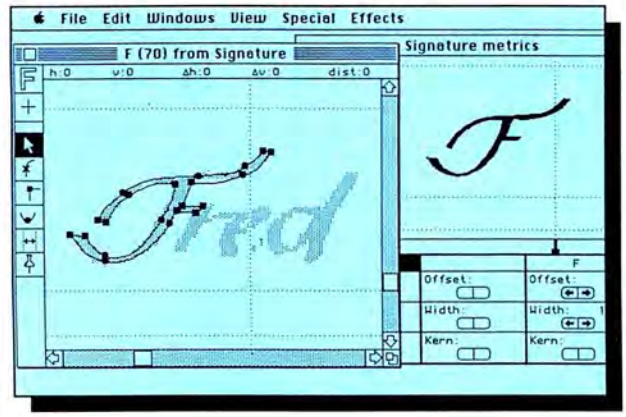
Open Mac Enterprises

140 Mason Circle, Suite H
Concord, CA 94520
(415) 682-0440

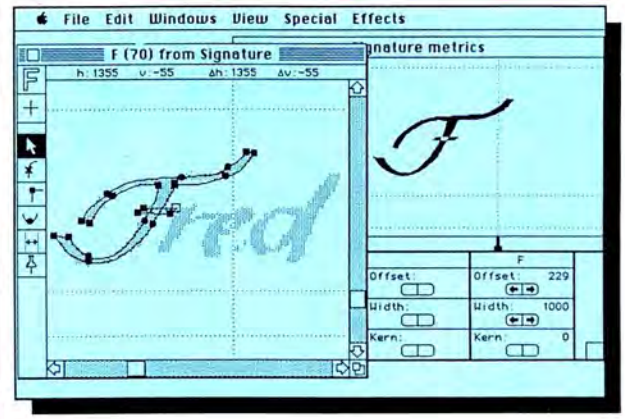
Macintosh and Apple are registered trademarks of Apple Computer Inc.
RamPlus, Ram II, and SCSI-Mac are trademarks of Open Mac Enterprises.

Please circle 87 on reader service card.

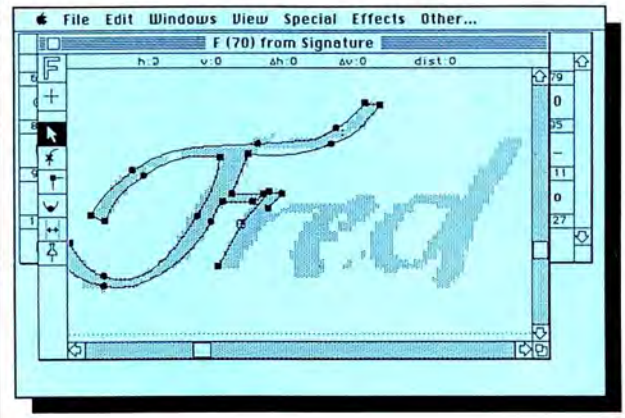
The Electronic Signature



The outlined "F" and its filled equivalent in the Font Metrics window.



Overlapping boxes can cause white space in the filled character.

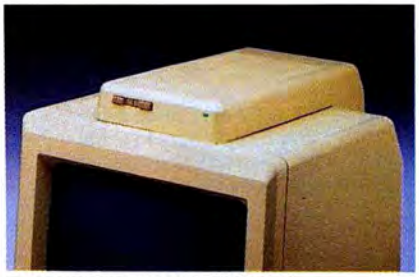


A tangent point is added by clicking between the two corner points.

radio button is selected. This sets the direction of the fill path—either clockwise or counter-clockwise—and tells *Fontographer* to fill the character in the opposite direction. If the enclosed loop in your letter is filled, then you will need to reverse the direction of the fill in *Fontographer*.

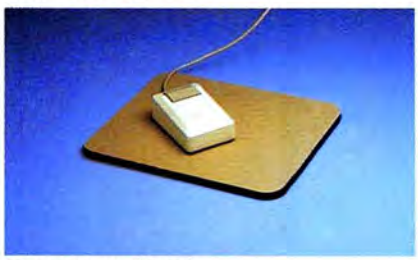
Perfect circles are the most difficult shape to draw. I don't have to worry about perfect circles in my signature, but I do have to worry about relatively clean curves. *Fontographer* lets you use the Bezier curves available in PostScript, which allow for the generation of non-uniform curves. You can change the shape of a curve by dragging the Bezier Control Points (the little plus signs) that appear whenever you click on a curve point. The best thing about the curves and control points is that you can adjust the curvature of a line to achieve smoothness with a minimum number of points. My finished signature probably has more points

Who says you can't always get what you want?



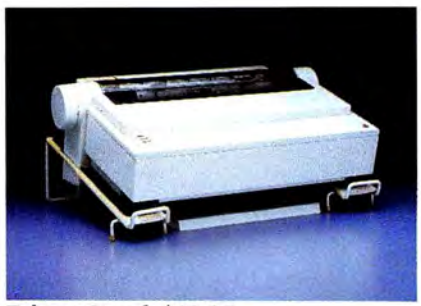
System Saver Mac, $99.95*

Tilt/Swivel, $34.95



Mouseway, $9.95

Anti-Glare Filter, $49.95*



Printer Stand, $19.95

Turbo Mouse, reg. or ADB, $129.95

Mick Jagger just never knew about Maccessories® Here, look:

Want a more comfortable Macintosh™? Easy. First, get your screen where you can see it with a Tilt/Swivel. Get your notes in line with a Copy Stand. And get some relief for your eyes with an Anti-Glare Filter.

Want surge protection, extra outlets, and cooling for your Mac or Mac Plus? Get it all with System Saver® Mac.

Want a quieter ImageWriter™? Get a 75% to 85% noise reduction with a Printer Muffler™ 80 and Stand.

Want a quicker mouse? Get twice the speed in half the space with a Turbo Mouse™ for your Mac or Mac Plus; Turbo Mouse ADB for your Mac SE or Mac II.

Want to make sure your Mac doesn't go anywhere without you? Get peace of mind with an Apple® Security System.

Want a clean machine? Get a Dust Cover for every piece of equipment—from your LaserWriter® to your external drive.

Want a free brochure? Want to know where you can get what you want? Call (800) 535-4242. In NY, call (212) 475-5200.

Please circle 142 on reader service card.

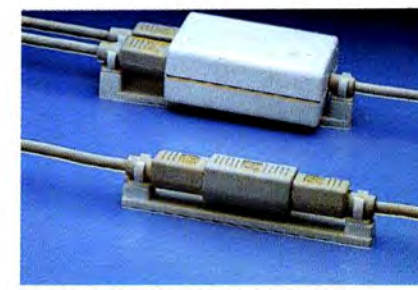
KENSINGTON™

Apple Security System, $49.95

Disk Pocket, $9.95

Copy Stand, $29.95

Printer Muffler 80, $59.95
Printer Muffler 80 Stand, $29.95



AppleTalk Clips, $25.00 for 25

Dust Covers, $9.95 to $13.75

Mouse Pocket, reg. or ADB, $9.95

Disk Drive Cleaning Kit, $29.95

***Available in two colors—original Apple Beige and new Apple Platinum.**

Trademarks: System Saver, Maccessories, Turbo Mouse, Printer Muffler/Kensington Microware Ltd. Apple, Mac., Macintosh, Apple Talk, ImageWriter/Apple Computer Inc. © 1987 Kensington Microware Ltd.

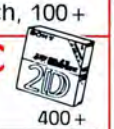
FREE SONY VHS* TAPE!!!

with every 50 *SONY* boxed or 100 *SONY* bulk diskettes purchased from this ad.
*Sorry, BETA tape not available.

SONY
Boxed in tens

3½" SS . . **1.02** each, 100+
3½" DS . . **1.49** each, 100+

SONY MAC ● PAC
Packaged in fifties



	50+	100+	400+
3½" SS	1.05	.99	.91
3½" DS	1.27	1.22	1.15

SONY LABELS 4¢ each, minimum 50

Boxed in tens

3½" SS . . . . . **.96** each, 100+
3½" DS . . . **1.15** each, 100+

GENUINE TEAK
3½" Disk Storage **15.95**

MAC ● MODEM 2400 BPS EXTERNAL
WITH COMMUNICATION SOFTWARE
- Fully Hayes compatible
- RS232 Mac cable **$209**

COPY II MAC
from Central Point Software **$24**

MAC BOTTOM

HARD DISK DRIVE
HD21 . . . . . **$839**
HD45 . . **$1239**

TONER CARTRIDGES
For Hewlett Packard, Canon and Apple Laser Printers **$94**
For Hewlett Packard LaserJet Series II **$99**

APPLE IMAGEWRITER RIBBONS
SOLD IN SIXES
Black 2.45
Color 3.05
(Color 6-packs include one each: red, green, yellow, blue, purple & brown)

NEW!! 4 color ribbons for Imagewriter II **11.99**

CALL TOLL FREE
★ *7 to 7 Central Time* ★ *10 to 3 Saturdays* ★

1 800 USA-FLEX
(1-800-872-3539)
Technical Service 1 (312) 351-7172

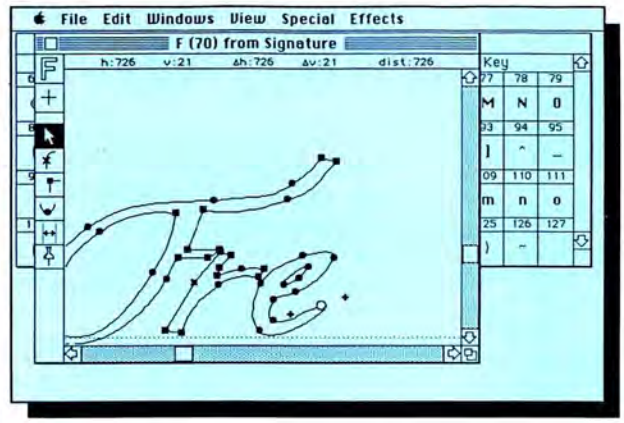
If you prefer sending in your order, please call first for shipping/handling charges. All prices and specifications subject to change without notice. (C) USA ★ FLEX

TERMS: Minimum order $100. Shipping/handling additional. Visa, MasterCard and Prepaid orders accepted. Corporations rated 3A2 or better & government accounts are accepted on a net 30 basis. C.O.D. orders add an additional $5.00 special handling charge. All checks must be imprinted with buyer's name and address. We ship to the 50 states, APO, FPO, AK, and HI orders add an additional 5% of the total order amount to cover PAL and insurance. No sales tax outside of IL. All returns must have prior authorization from our Customer Service Dept. (1-312-351-9700). Unauthorized returns, refused shipments are subject to 20% restocking charge.

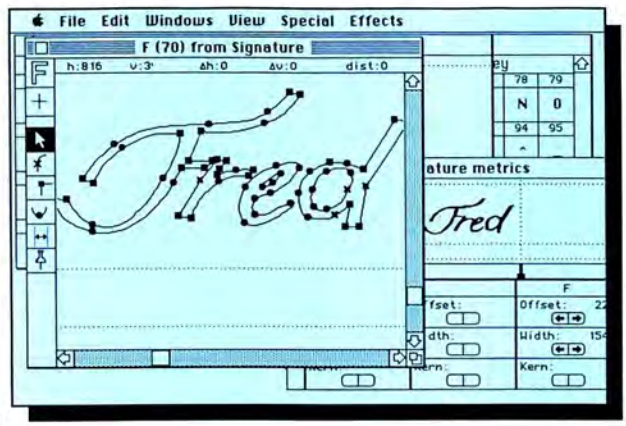
USA★FLEX
135 N. Brandon Dr., Glendale Heights, IL 60139

Please circle 150 on reader service card.

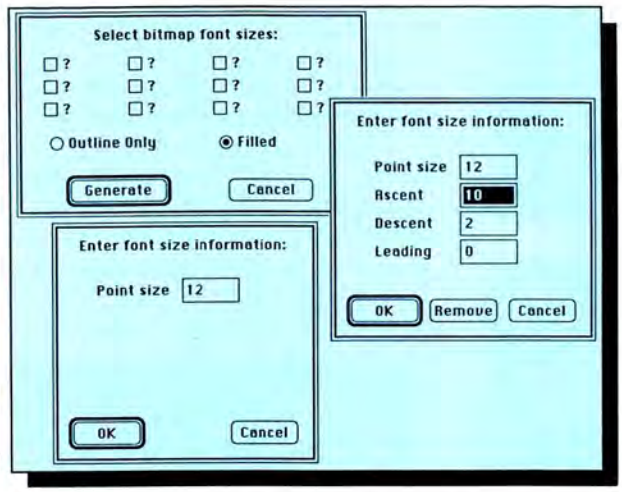
The Electronic Signature



The two "plus" signs are the Bezier Control Points for the highlighted curve point.



The complete and ill-shaped signature.



The selection boxes let you specify the font sizes, ascent, descent and leading information before you generate the bit-mapped versions of your PostScript font.

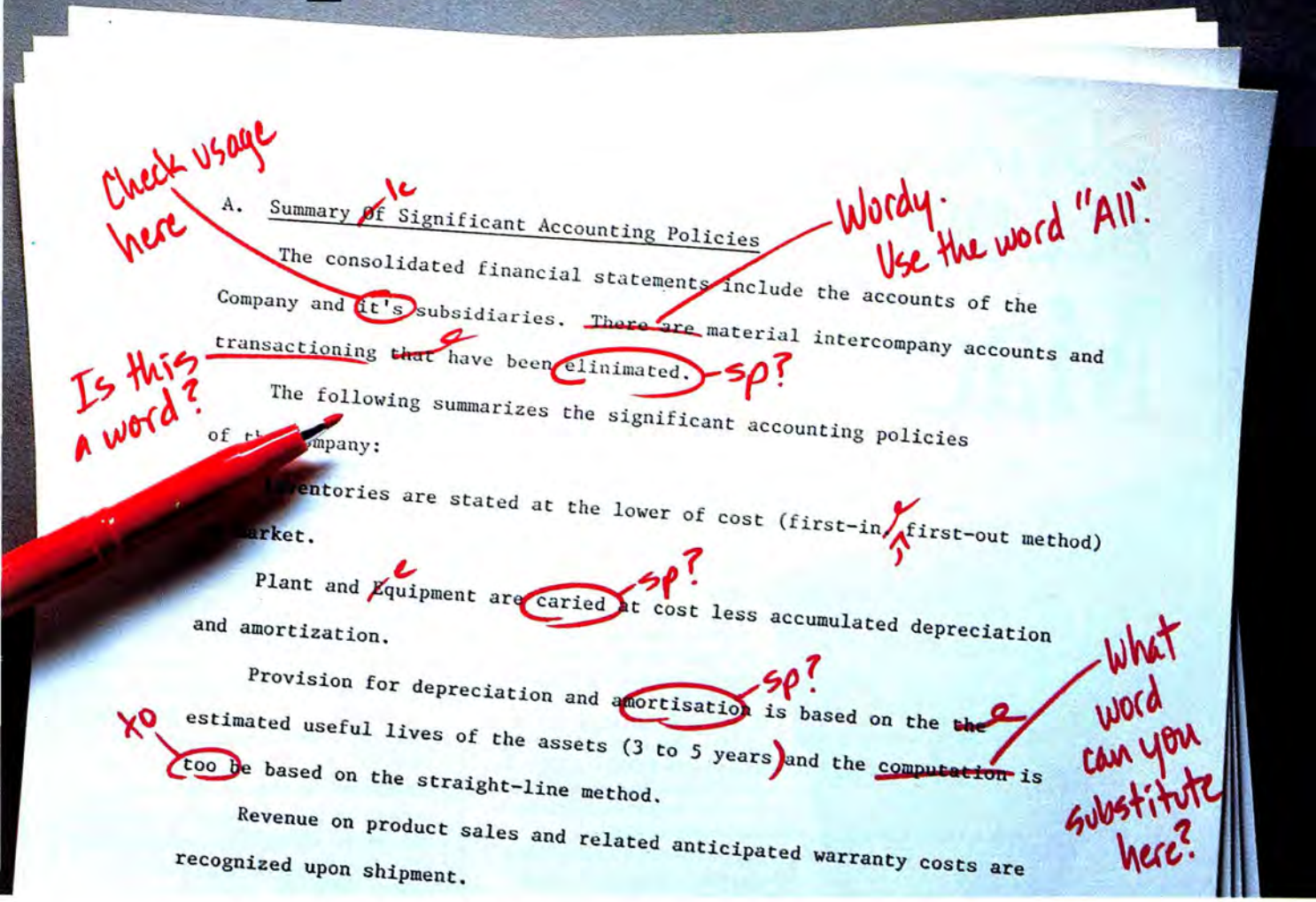
than necessary, but for what I am trying to achieve, I can quickly reach a point of diminishing returns.

WRITING POSTSCRIPT

Generating the PostScript and bit-mapped versions of a signature is much easier than drawing it. When you have given up trying to get the font perfect, select GENERATE POST-SCRIPT font from the File menu. Choose form and COMPRESSED in the selection box that appears. That's all that is necessary for the PostScript version of your signature.

You will need to generate a bit-mapped version of the font so you can see it on-screen. To do this, highlight the letter or letters in the font and select GENERATE BIT-MAPS from the File menu. If you were to generate an entire font, you would select all of the letters, but *Fontographer* gives you the option of gen-

Stop the red menace.



Introducing MacProof 3.0

You toil for hours getting an important business proposal just right. Only to have your boss send it back to you with more red marks on it than white space. That's not a pretty sight.

With MacProof™ 3.0, you may never see red again. MacProof is a Desk Accessory software package for the Macintosh®, that points out possible errors in style, usage and the mechanics of writing. A few clicks of the mouse makes a correction. MacProof can even make you a better writer over time by indicating possible mistakes, suggesting solutions—and letting you decide what action to take.

All the proof you need.

MacProof incorporates features that can make writing a breeze instead of a burden. An 80,000 word dictionary checks your spelling. Writing mechanics such as punctuation, capitalization and double words are reviewed.

MacProof checks for problems of usage such as racist or sexist words, words that are often confused (e.g. its and it's) and imprecise or wordy writing. It even searches for problems in style such as an overuse of "be" verbs or non-standard words that make your writing less active and precise.

Extra credit.

MacProof adjusts itself to suit your writing style and problem areas. You decide which aspects of usage, style or mechanics you want checked and MacProof will check only those areas. You can even add your own usage category for MacProof to analyze. And since MacProof works as a Desk Accessory, you can check for errors, review solutions and make corrections without ever leaving your document.

MacProof can give you word, sentence and paragraph counts in a document. Other features allow you to analyze the structure and flow of a document. And MacProof works with most word processing software for the Macintosh, including MacWrite™, MicroSoft Word™ 3.0, PageMaker™, WriteNow™ and MindWrite™.

Get out of the red.

Discover how easy it is to become a great communicator and protect yourself against the red threat with MacProof 3.0. For your copy of MacProof, see your local Macintosh software dealer. Or write:

a.l.p. Systems
295 Chipeta Way
Salt Lake City, Utah 84108
1-800-354-5656
1-801-584-3000

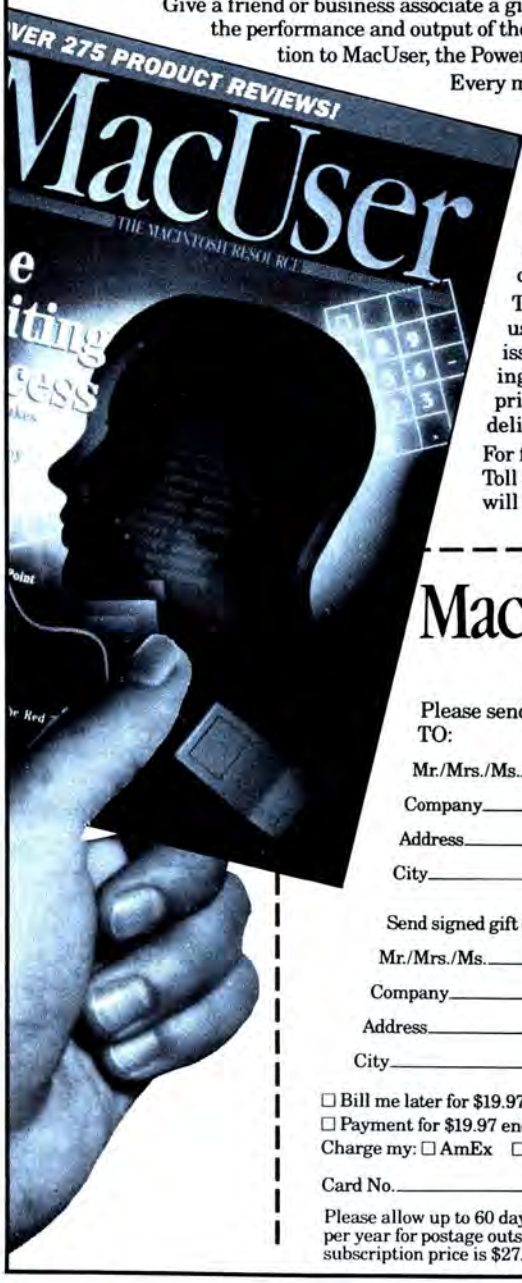
Automated Language Processing Systems

Please circle 93 on reader service card.

THE ONE GIFT SUITABLE FOR ALL OCCASIONS...

MacUser

Give a friend or business associate a gift that will help them increase the performance and output of their Mac system—give a subscription to MacUser, the Power Users Resource!



Every month you'll be giving a valuable reference and hands-on guide to power user tips and techniques, coverage of important applications including networking, desktop publishing and telecommunications and insights that no other magazine can deliver!

There's no better gift for any Mac user! One year of MacUser, 12 big issues for only $19.97—a 58% savings OFF the annual single-copy price of $47.40! Give the gift that's delivered all year long!

For fast service call 1-800-852-5200 Toll Free! An Attractive Gift card will be sent in your name.

MacUser P.O. Box 52461 Boulder, Colorado 80322-2461

Please send a MacUser Gift Subscription TO:

Mr./Mrs./Ms._____
Please print

Company_____

Address_____

City_____ State_____ Zip_____

Send signed gift card FROM:

Mr./Mrs./Ms._____

Company_____

Address_____

City_____ State_____ Zip_____

☐ Bill me later for $19.97
☐ Payment for $19.97 enclosed
Charge my: ☐ AmEx ☐ Visa ☐ MC

Card No._____ Exp. Date_____

Please allow up to 60 days for delivery of first issue. Add $12 per year for postage outside USA, US funds only. Annual basic subscription price is $27.

The Electronic Signature

erating only a few characters. This is helpful if you have cleaned up two or three characters and don't need to generate the whole font again. The Select bit-map Font Sizes dialog box appears and you enter the different sizes that you want to generate. Clicking in one of the check boxes brings up a window where you enter the size information which opens a window that shows you the calculated values for ascent, descent and leading. After specifying all of the bit-map sizes, click on GENERATE.

Once the bit-mapped version is generated, use *FONTastic,* which is included with *Fontographer,* or *FONTastic Plus* to clean it up so it will not look so ragged. The larger bit-mapped sizes will need little modification, but the smaller ones will need quite a bit of editing. While you are editing the bit-mapped font, do not change the character width. This modifies the FOND resource created by *Fontographer* and can ruin character spacing. We are not particularly concerned about the spacing, but the FOND also links the bit-mapped version of the font to the PostScript version. A final word of warning: do not try to install your bit-map font with *FONTastic.* It does not "understand" FONDs and cannot copy them into your *System* file.

GETTING POSTSCRIPT INTO YOUR SYSTEM

Installing the fonts in your *System* is perhaps the easiest part of creating them. Install the bit-map font in the usual fashion with *Font/DA Mover* 3.2 (version 3.5 is current at press time) or later (earlier versions of the *Font/DA Mover* do not handle FONDs properly). To install the PostScript font version, you just drag it into the System folder on your startup disk. Now you are ready to sign your name in PostScript. The PostScript fonts that *Fontographer* creates are automatic fonts: whenever you print a document with the PostScript font in it, the font is automatically downloaded to the LaserWriter.

Some argue that for speedy printing you should manually download the font. However, manual downloading offers no significant gain in

State of the Art Back-Up for the State of the Art Computer...

MacUser
The Macintosh Resource

No matter what your RAM or why you use a Macintosh, the most you can get out of it is equal to what you put into it.

Otherwise all you have is an expensive desk-top paperweight.

That's why you need the state-of-the-art Macintosh magazine. MacUser.

Every monthly issue delivers comprehensive benchmark test results of Macintosh hardware and software conducted by MacUser Labs, the publishing industry's only independent product testing laboratory—***to help you select the products that will do the jobs you need done!*** You'll find hands-on tutorials and coverage on important applications including desktop publishing, graphics, telecommunications and networking—***to help you increase the performance of your Mac.*** You'll find proven ***short-cut routines and techniques —to provide you with new computing skills*** PLUS you'll find hundreds of mini-reviews covering the most popular hardware and software available for your Mac!

Subscribe to *MacUser* today and save up to 63% OFF the single copy price! Provide your system with State-of-the-Art information at affordable prices!

Give *MacUser* as a gift! It's the perfect gift for all business, educational and game users. Save up to 63% on each subscription you give!!

For Increased Power

Yes! I want to make my Macintosh a more powerful system! Begin my susbscription to MacUser for:

☐ One year (12 issues) for $19.97. SAVE 58%!
☐ Two years (24 issues) for $34.97. SAVE 63%!
Savings based on annual single-copy price of $47.40.

MR./MRS./MS. Please print full name

COMPANY

ADDRESS

CITY STATE ZIP 4S234

☐ Payment enclosed ☐ Bill me later

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and Mexico, $30 per year in all other foreign countries, U.S. currency only. Basic annual subscription price is $27.

For Greater Performance

Yes! I want to make my Macintosh a more powerful system! Begin my susbscription to MacUser for:

☐ One year (12 issues) for $19.97. SAVE 58%!
☐ Two years (24 issues) for $34.97. SAVE 63%!
Savings based on annual single-copy price of $47.40.

MR./MRS./MS. Please print full name

COMPANY

ADDRESS

CITY STATE ZIP 4S234

☐ Payment enclosed ☐ Bill me later

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and Mexico, $30 per year in all other foreign countries, U.S. currency only. Basic annual subscription price is $27.

For a Perfect Gift

Yes! I want to give hundreds of product reviews and comprehensive coverage on the Macintosh and its applications every month to a friend! Please begin a gift MacUser Gift Subscription for:

☐ One year (12 issues) for $19.97—a 58% Savings.
☐ Two years (24 issues) for $34.97—a 63% Savings.

TO:

MR./MRS./MS. Please print full name

COMPANY

ADDRESS

CITY STATE ZIP

SEND GIFT CARD FROM AND BILL:

MR./MRS./MS. Please print full name

COMPANY

ADDRESS

CITY STATE ZIP 4S242

Please allow 30 to 60 days for delivery of first issue. Add $12 per year for postage in Canada and Mexico, $30 per year in all other foreign countries, U.S. currency only. Basic annual subscription price is $27.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
P.O. Box 52461
Boulder, CO 80321-2461

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
P.O. Box 52461
Boulder, CO 80321-2461

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT #66 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
P.O. Box 52461
Boulder, CO 80321-2461

Plug More Power into Your MAC Every Month with MacUser and Save Up to 63%!

- Exclusive benchmark test evaluations and comparisons from MacUser Labs!
- Hands-on tutorials!
- Hundreds of product reviews in every issue!
- In-depth coverage of *all* Macintosh applications including desktop publishing, graphics, telecommunications *and more!*
- Comprehensive and useful power user tips and procedures!

Subscribe today and save up to 63%—and guarantee delivery of the Macintosh resource every month! It's the only magazine Mac users need to maximize their performance and increase the power of their system!

Give MacUser as a gift! Deliver a friend or colleague a valuable desktop accessory and save up to 63%!

MacUser

The Electronic Signature

time over automatically downloadable fonts: you either wait for the font to download before you load the application or wait for the font to download while you are printing.

The real benefit of manually downloading a font is that it is not purged from memory as soon as the document is printed. If you need to use the same font across multiple print jobs, manually downloading a font will save time. Altsys includes a utility with *Fontographer*. You can also use the *Laser Status* desk accessory or the *Widgets* utility from CE Software. *Laser Status* is your best choice because it lets you download a font file while you're in an application.

Naturally, this is a very superficial encounter with *Fontographer;* I have discussed only a few of its many features and I have completely avoided design concerns. *Fontographer* is a professional tool Altsys has a history of making their products better and *Fontographer* follows that tradition. The only flaw in *Fontographer* is its copy protection. However, if the user returns the warranty card that comes with the latest update (which is being shipped as I write this), Altsys will send an unprotected version. Now that's a reason to lick a 14-cent stamp.

FRED TERRY IS A MARKETING ASSOCIATE AND STAFF WRITER AT BEHAVIORTECH AND A KANSAS-BASED CBT DEVELOPER FOR IBMS AND CLONES.

MACUSER RATING

Fontographer $\$\$\$\$$

Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ □

Comments: A professional tool for creating PostScript fonts and logos. **Best Feature:** A flexible and complete environment for creating PostScript fonts and their bit-mapped equivalents. **Worst Feature:** Copy protected (this will be dropped in version 2.3). **List Price:** $395. Published by Altsys, 720 Avenue F, Suite 108, Plano, TX 75074. (214) 424-8914. Version 2.2 reviewed. Copy protected.

Desktop Communications | Desktop Engineering | Desktop Publishing

Macintosh II and Macintosh SE Compatible!

NEW... *Supports Color Monitors on the Macintosh II.*
Supports Big Screen Monitors.
Supports the new Apple Desktop Bus Keyboards.

VersaTerm-PRO™

Version 2.00 Price: $ 295.00
Special upgrade price for registered VersaTerm Owners.

All the features of standard VersaTerm AND...

The most complete Tektronix 4105 Graphics Terminal Emulation available on the Macintosh!

Enhanced Tektronix 4014 Graphics Emulation

Zoom and Pan Graphics Interactively from Memory!

- *New! Cleared Graphic Screens (up to 32) may be instantly viewed from memory.*
- Create MacDraw, MacPaint and MacWrite documents from memory.
- Very high quality graphics may be printed on the LaserWriter.
- Color graphics output supported with ImageWriter II.

Designed for the Professional who requires sophisticated GRAPHICS features as well as the powerful TEXT features of standard VersaTerm.

VersaTerm™

Version 3.00 Price: $ 99.00

Terminal Emulation:
- DEC VT100
- DEC VT52
- Tektronix 4014
- Tektronix 4010
- DG D200

File Transfer:
- TEXT
- MacTerminal™ XModem
- Text XModem Protocol
- MacBinary XModem
- Text/Binary Kermit Protocol
- MacBinary Kermit

- *Multiple file uploads and downloads.*
- *Automatic Macro Definitions*
- *Multiple Command Sets*
- *"Word Mouse" feature*

New!

- Not Copy-Protected.
- Supports DEC VT100 132 column mode.
- Very High character throughput.

Designed for users who require excellent TEXT performance but not heavily using graphics.

Designed for a 512K Mac, Mac Plus or Mac-XL. Supports the ImageWriter(I/II) and LaserWriter printer.

Published and Distributed by: PERIPHERALS COMPUTERS & SUPPLIES INC.

PCS Inc.
2457 Perkiomen Avenue
Mt. Penn, PA 19606
(215) 779-0522

Developed by: Abelbeck Software

Please circle 218 on reader service card.

MANUFACTURERS TAKE NOTE!

When your product or company is covered by this magazine, you can order custom designed reprints* for use in promotional mailings, sales kits, press releases and point-of- purchase displays.

For more information on how you can take advantage of this wonderful promotional opportunity, call or write:
Jennifer Locke—Reprints Manager, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016 212-503-5447.

*Minimum quantity—500 reprints.

If you want to know why FullWrite

Within the next ten minutes, your entire concept of word processing will be turned upside down.

FullWrite Professional™ sets new standards for word processing.

It lets you handle words better, faster, more powerfully, with more versatility than any other word processing program. But competing in today's world requires even more. Now, documents need the persuasive power of text and graphics combined.

That's why FullWrite Professional easily turns your words into fully illustrated documents, and even generates the graphics. Chances are, you'll never need a page layout program.

FullWrite Professional is going to change serious writing forever. Here's why.

- *WYSIWYG multi-column display.* What you see on the screen is exactly what prints on the page. With automatic repagination, as you type.
- *Full desktop publishing look.* Drop in any shaped image, and watch the text wrap around it automatically. Create sidebars to mix multiple column sizes on the same page, as well as multi-column headlines. Automatically revises layouts while you edit.
- *An integrated MacDraw®-like drawing environment.* With Bezier curves similar to Adobe's Illustrator™ for smoother, more natural looking curves. Bit-mapped graphics are automatically converted to laser resolution objects for easy cropping, scaling, and re-sizing.
- *Change bars.* Visually highlights changes between drafts of a document.
- *Posted notes.* Append comments and observations directly to a document without affecting the text. Notes are automatically stamped with the time, date and name of person making the comment. Make comments individually or as a group.
- *Browser.* Quickly scan footnotes, posted notes, pictures, virtually any user defined category, through a special window, without looking through the entire document.
- *Outlining.* Sophisticated, powerful outlining that rivals the best stand-alone products.
- *Automatic free upgrade.* All registered owners receive a free media upgrade to the next version, automatically.
- *Power word processing features.* All the

Professional really is so damn good,

you'd better sit down.

Macintosh is a trademark licensed to Apple Computer, Inc.
MacDraw is a registered trademark of Apple Computer, Inc.
Adobe Illustrator is a trademark of Adobe Systems, Inc.
The prefix Full, FullWrite, and FullWrite Professional are trademarks of Ann Arbor Softworks.

© Ann Arbor Softworks 1987

standard editing features plus: User definable outlining styles; base style sheets; custom style sheets; find and replace by virtually any attribute; large screen support; spelling checker; thesaurus; automatic hyphenation; automatic table of contents and index generation; full undo of all options; bookmarks; references; glossaries; variables; mailmerge; full header and footer support with graphics; automatic renumbering of footnotes, endnotes, pictures and other user defined items; kerning; leading; guttering; column rules; strikeouts; small caps; multiple windows; show pages; full keyboard shortcuts; true laser grey scales; intelligent left/right formatting of pages; flexible printing; directly import other word processing documents and more!

FullWrite Professional is not just for professional writers and communicators. It's for managers, account executives, and secretaries, too. It is the word processing program for the future. Your future.

If you can operate a Mac Plus, SE, or II (anyone can operate a Mac), you can use FullWrite Professional. Right away.

It's what word processing was meant to be. And it's going to change serious writing.

Forever.

Please circle 34 on reader service card.

FULLWRITE PROFESSIONAL

ANN ARBOR SOFTWORKS

2393 Teller Road • Suite 106 • Newbury Park, CA 91320
Phone: (805) 375-1467

A Second Coat of Paint

You want graphics?

Here's the works.

GraphicWorks 1.1,

that is.

BY PHIL INGE CHANG

DO YOU REMEMBER *COMIC-Works*? Maybe Mindscape is hoping that we've all forgotten about that somewhat unusual graphics program by MacroMind and Mike Saenz. Users of *GraphicWorks* 1.0 were told that it was the exact same thing. Now Mindscape is marketing version 1.1 as suitable for "Professional Documents," and, hence, as a sort of desktop publishing application.

Opportunistic? Maybe. But this long-awaited new release has some thoughtful improvements that accommodate the quickly growing need for higher-resolution output. In particular, high-resolution bitmaps can be created in a flexible way, and graphic primitives are now a separate tool. Both improvements can make the most of both LaserWriter and Linotronic output.

GraphicWorks is an unusual program, and even in its first version had sophisticated bit-mapped graphics features like the Ink options for merging bit-maps in nine different modes. It also works with panels and easels—a metaphor that some may find constricting, but one that is practical and flexible. In the heated DTP atmosphere of frames (or blocks) versus no frames, *GraphicWorks* is taking sides with *XPress* and *Ready, Set, Go!* against the open-page contenders *PageMaker* and *SuperPaint*.

This amounts to more than a battle of words, because there is more than apparent ease of use at stake. Though it's true that *SuperPaint* allows you to just start drawing without defining a drawing area first, the use of panels and easels in *GraphicWorks* allows sophisticated layering (such as with various Inks) and built-in cropping, grouping and portability of both painted and drawn objects and text.

TEXTURAL DIFFERENCES

GraphicWorks has some things in common with *XPress* and *Ready, Set, Go!*, (probably more so than *Super-*

Paint and *PageMaker*), but as its name suggests, its specialty is graphics. The use of panels may be convenient when creating comic strips and storyboards, but their use in general forces you to consider the overall format of a page. So the verdict is, don't use *GraphicWorks* for complicated text processing. For sophisticated graphics and some kinds of page layout, it is a capable and handy tool.

Mac users often assume that a variety of programs will handle complementary tasks. Unfortunately, many Mac developers seem bent on producing that one do-it-all, alone-in-its-class, SuperDuper (Fill in the blank, and don't forget to stick words together and capitalize everything). Some other examples include *LaserPaint,* a new "integrated graphics workshop" which can also handle high-resolution bit-maps, primitives and text. *Cricket Draw* is a new breed of *MacDraw,* and *FullPaint* is an offshoot of *MacPaint.* And, of course, *Adobe Illustrator* is sitting pretty with a lot of drawing functionality, but it disregards bit-maps. So, *GraphicWorks* and *SuperPaint* are certainly not the only kids on the corner of Macintosh and Graphics Avenues. But, lest we forget, they are among the oldest programs and perhaps conform the most to the Mac environment. And no one can deny that integrating drawing, painting and text is desirable. So how different are *GraphicWorks* and *SuperPaint*? And should you buy one if you already have the other?

FAIRLY DIFFERENT, SO THERE

Simply put, *SuperPaint* has separate Paint and Draw layers with two toolboxes, and an alternating Draw-/Paint menu. *GraphicWorks* is an all-in-one product—Draw and Paint are together. *SuperPaint* builds conceptually on the Draw and Paint models, providing a lot of Paint and some more Draw features. *GraphicWorks* has some interesting and unique Paint and Draw tools. Let's take a look at the drawing features first.

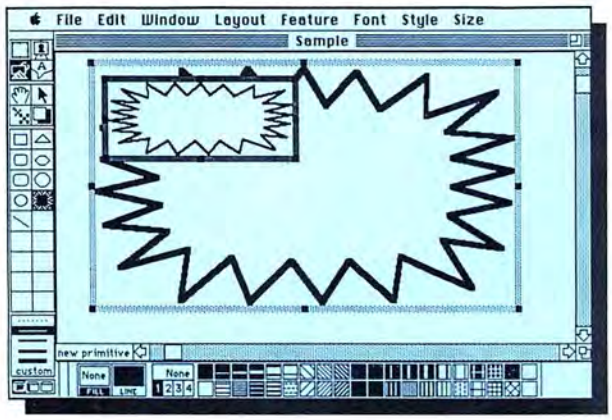
LET'S GET PRIMITIVE

In the old version (aka *ComicWorks*), MacroMind provided primitives as the borders of panels and text balloons. A panel has to be drawn before anything else, and it comes with a changeable border.

A major reason for having primitives is to reduce the jaggies on the edges of supposedly smooth lines and shapes when printing on a LaserWriter. But users claimed to have problems printing panels as smooth objects on the LaserWriter. One reason that occured was that the default option for printing to the LaserWriter was in quick, bit-mapped mode. Mark Canter of MacroMind has openly admitted, however, that there were problems in bypassing QuickDraw (the graphic routines of the Mac's operating system) at print time.

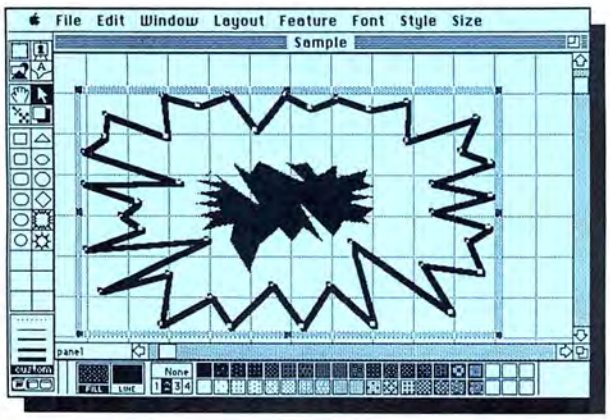
GARY BUSS

A Second Coat of Paint

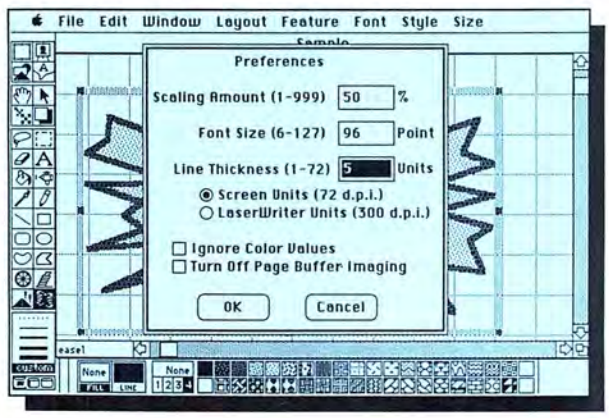


If you want primitives, *GraphicWorks* has them all—or nearly all. Don't look for any flexible or Bezier curves.

The New Balloon tool can use interesting primitives to frame text.



The star-shaped primitive is characteristic of the program, but its size, shape and fill pattern can be modified.



The Preferences dialog can be accessed under the Window menu or by double-clicking on the Custom line-weight icon.

Obviously, the old concept that no one would use primitives for something other than a border was getting dated. So now there's a full array of primitives under a separate tool—well, everything short of a freehand polygon (the kind in which every click is a corner) and an arc. Connectable Bezier curves (a lá *Illustrator*) and other truly sophisticated drawing functions are also missing, for that matter.

A static screen dump can't show it, but another new feature of 1.1 is the way the bottom part of the toolbox changes depending on which tool has been chosen. That's called a "context-sensitive tool window," and it's like a separate toolbox for each of the top four tools. The Primitives tool is, as already mentioned, new among the four tools, which include New Panel, New Easel and New Balloon. Interestingly, the same primitives (except for the line) and more, are available for the New Panel tool. Almost the same can be said for the New Balloon tool, which definitely makes some unusual primitives available for the framing of text.

Although panels, balloons and primitives will shrink or enlarge to fit their enclosed selection boxes, they are also editable (except for the cloud-shaped balloons). Select RESHAPE PANEL/PRIMITIVE/BALLOON in the Layout menu, and all corners of the shape become selectable and independently movable. Although star shapes are definitely a trademark of this program, these primitives, like all primitives, can be selected and modified after they are initially created. The border weight and pattern, fill pattern, size and shape can all be changed. (Balloons cannot be filled, except in a way mentioned later.) No wonder users demanded them as separate tools.

I had no problems in printing panels, balloons and regular primitives as smooth shapes. A word of warning, though: some of the supposedly rounded balloon shapes with tails and many selection points will print as a series of short straight lines, and their smoothness is therefore compromised.

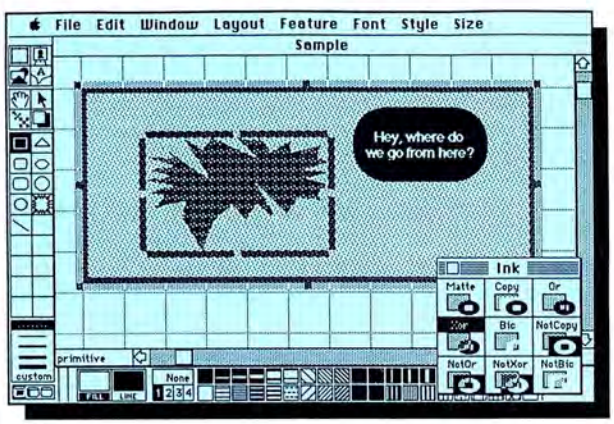
Primitives affect borders and lines

in a particularly flexible way when using the Preferences dialog box, which is selected under the Window menu or by double-clicking on the Custom line weight. You can assign a border or line a thickness in 1/72 or 1/300 of an inch. Also, the second Fill Patterns menu contains a full set of PostScript gray screens. A panel or primitive filled with one of these prints with that percentage gray at the screen resolution of any PostScript printer, such as the LaserWriter or Linotronic 100 and 300.

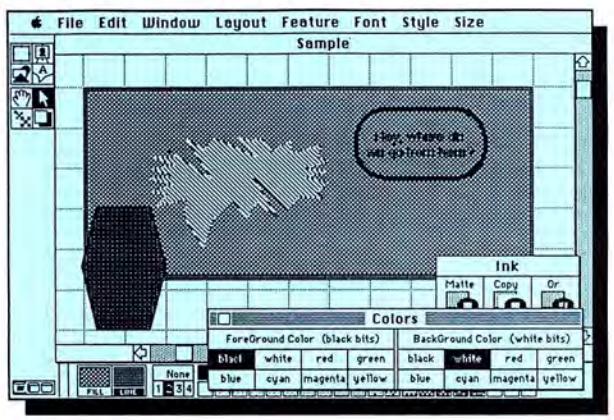
Finally, panels, primitives and balloons each vary in their sensitivity to the Ink options. These options are actually for bit-maps, not primitives. Nevertheless, they can be tried out. For the three kinds of primitives we'll get the following results: panels, no effect; primitives, they'll look dandy, but they only print in the way they were originally created; and for balloons, choosing OR lets anything behind the balloon (like the fill pattern of a panel) show through, and NOT OR inverts the balloon to white text on black. The same balloon effects can be gotten by selecting None and black in the fill patterns bar.

A WORD ON COLOR

The standard kind of ink for all three kinds of primitives is Matte, which erases everything underneath the shape to white. This means not only that primitives consistently stay on top of each other and on top of bit-maps, but also that they have a background color, normally white (unless balloons are made transparent or inverted). The Colors options under Window allow you to select a foreground and background color for viewing on the Mac II or printing on an ImageWriter II, just as in *SuperPaint*. A bit-map is normally Or when created, so there is effectively no background color for that particular easel. Of course, it can be changed to Matte or any of the other eight options. Ink options are very flexible for bit-maps, and various ink modes produce all sorts of interesting effects in combination with various colors. The color of pasted-in



One major distinction between *GraphicWorks* and other paint programs is that a full set of Ink options allows flexible layering of text.



The Colors options operate similarly to the way *SuperPaint* handles it—both background and foreground colors can be chosen.

Special Upgrade Offer

REGISTERED THINKTANK OWNERS DESERVE MORE™!

As a registered Macintosh™ ThinkTank™ owner, you can now upgrade to MORE for only $99.*
That's a $196. savings!

MORE is the ultimate productivity tool for managers and decision-makers. You'll organize plans, lists and ideas. You'll manage time, people and projects and you'll be able to transform your ideas into presentations... instantly!

What's more, registered MORE customers get the added bonus of a Preferred Membership Card. Card carrying members are entitled to free product support, technical notes, and a free subscription to *Headlines*, the Living Videotext newsletter. Your Preferred Membership Card will have your registration number and the phone numbers of the Product Support and Customer Service departments. In addition, you'll also be notified of special offers made periodically to preferred cardholders only. Because as a member, you deserve more.

Call the number below for more information.

800-822-3700
In CA, 800-443-4310

LIVING VIDEOTEXT
117 Easy Street
Mountain View, CA 94043

*Add $5.00 for shipping and handling. International Orders add $10.00.

ThinkTank and MORE are trademarks of Living Videotext.

IT ISN'T OVER 'TIL IT'S COVERED

MAC SE NOW AVAILABLE
MAC II AVAILABLE SOON.

Your Macintosh is a very special computer, therefore, it deserves the best dust covers available. **Computer Cover Company** designs these covers specifically for each Macintosh component. Our workmanship and quality has been acknowledged by thousands of our discerning customers.

Have you ever tried vinyl, naugahyde or cloth dust covers? If you have, then you can appreciate why our covers are constructed of 400 denier Rip Stop Nylon. Our covers are water and static resistant, they **will not tear, crack or create lint problems.**

MACINTOSH COVER SETS — BASE PRICE*

#100 . . . Macintosh, keyboard, and mouse $21.95*
#110 . . . Macintosh, keyboard, printer, and mouse $29.95*
#120 . . Macintosh, keyboard, printer, external drive, and mouse $31.95*

STAND UPS:
Universal printer stands designed for your Imagewriter or Imagewriter II.
Direct Order $13.95 . . . . . *w/Purchase of Cover Set Only* **$10.95**

PAK UPS:
Convenient diskette carriers with velcro closure holds diskettes safe and secure.
3.5" Small PAK UP holds 1 or 2 diskettes *direct order* **$4.95** **2/$7.95**
3.5" Big PAK UP holds up to 8 diskettes *direct order* **$7.95** **2/$12.95**
Colors — bone, tan, blue, platinum, brown, red, black, smoke, green.

IMAGEWRITER RIBBONS:	Box of Six	5 or Less
Black	**$21.95/$3.66 ea.**	**$4.50 ea.**
Solid Colors	**$26.95/$4.50 ea.**	**$6.00 ea.**
Multicolored I/W II	**$52.50/$8.75 ea.**	**$10.00 ea.**

SLIP UPS:
Our own special mouse pad measures 8" x 9½". Available in 3 colors: blue, red and gray. Regulary **$6.95**

★ ★ **FREE — Slip Up Mouse Pad** w/each **Cover Set** Purchased. ★ ★

ORDER FORM — Complete and Mail To:
Computer Cover Co., P.O. Box 3080, Laguna Hills, CA 92654
Orders Only **CA (800) 237-5376** — Outside CA **(800) 235-5330**
Inquiries **(714) 380-0085**

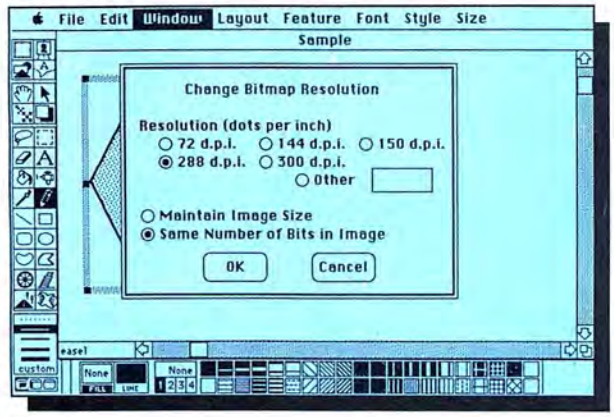
Macintosh set number _____ **Base Price** _____
Monitor: ☐ 128/512/Plus [NAC] ☐ Mac atop HD20 (add $1.00) [No Additional Charge]
Keyboard: ☐ 128/512 [NAC] ☐ Mac PLUS [NAC] ☐ Mac SE [NAC]
Printer: ☐ Imagewriter [NAC] ☐ Imagewriter II (add $1.00)
☐ Laserwriter (add $5.00) ☐ 15" Imagewriter (add $2.00) ☐ I/W II w/sheet feed (add $5.00)
Disk Drive: ☐ 400K [NAC] ☐ 800K [NAC] ☐ HD20 (add $1.)
☐ Relax Technology Mac Mate 20 (add $1.) ☐ Super Mac 20/40 Mb (add $1.)
Color Choice: ☐ Bone ☐ Blue (royal) ☐ Tan ☐ Brown ☐ Platinum
★ ★ ★ **FREE Slip Up with each Cover Set Purchased** ★ ★ ★ $ [NAC]

Subtotal $.
CA residents add 6% sales tax $.
U.P.S. Ground $ 3.00
(foreign orders/FPO/APO extra)
Total $.

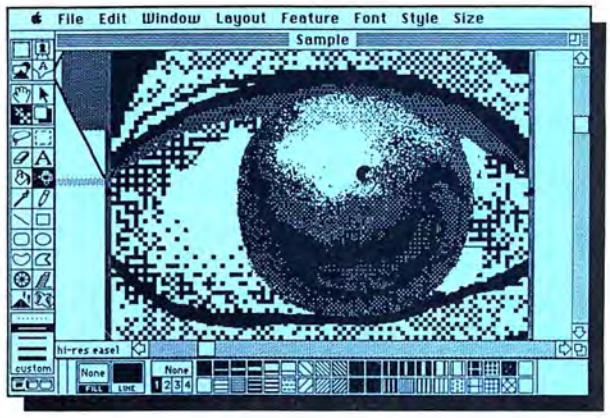
Name _____
Address _____
_____ Zip _____
Daytime Phone (____) _____
Payment enclosed ☐ Bill my Visa ☐ M/C ☐
Card # _____ Exp: ___/___

Please circle 202 on reader service card.

A Second Coat of Paint



Another option under the Window menu is to adjust the resolution of your bit-mapped graphics—a change which may result in long printing times.



With high-res easels, you can paint at full size.

PICT objects cannot be changed.

AND ONE WORD ON TEXT

Zip. Seriously, I was last seen hopping a plane to Hawaii when this segment was written, which is what MacroMind must've done when they wrote the text handling part of *GraphicWorks*. One typeface, size and style per balloon, sort of like in *MacDraw,* and the attributes are awfully hard to change after creation. At least I haven't found a way yet.

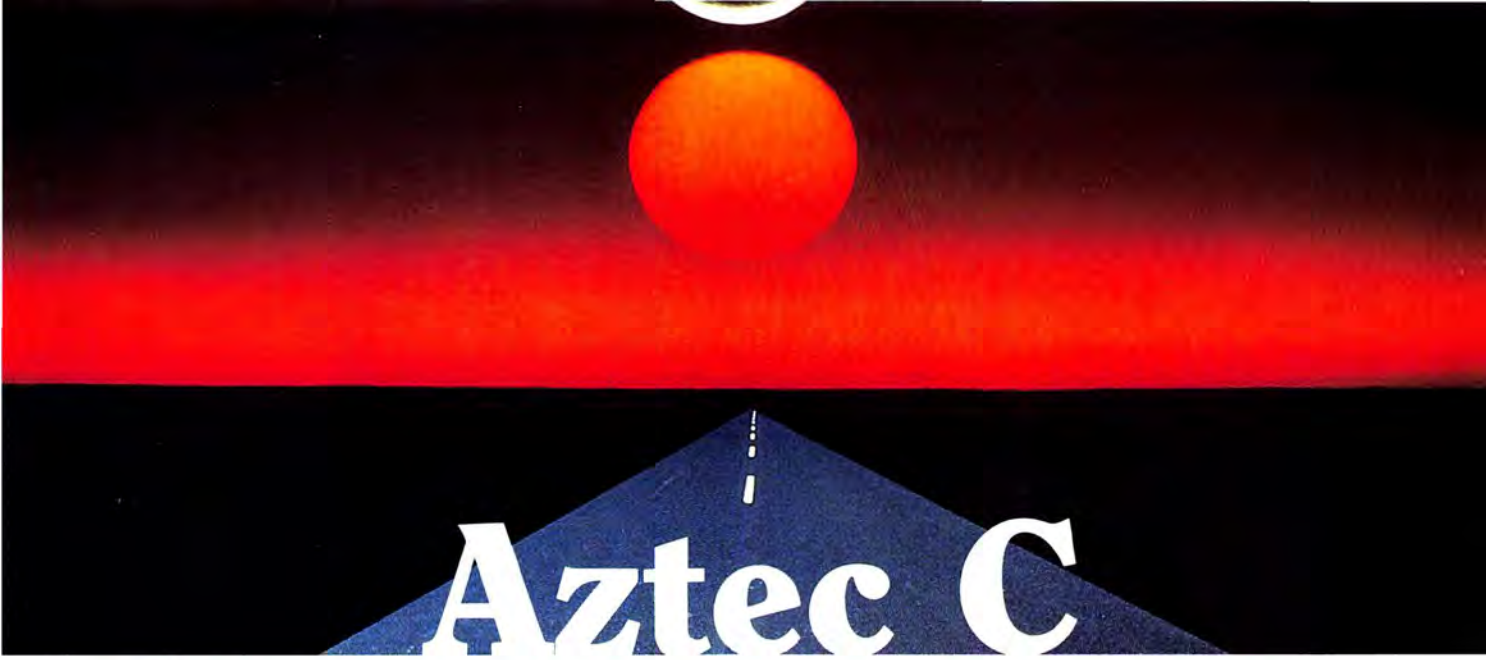
GETTING BIT-FACED

The moment we've all been dreading is upon us. What about those Inks? And the high-res stuff? Start from the beginning. Draw a panel, then an easel, then another easel. Note the full complement of painting tools in the bottom of the toolbox. Choose a distinctive pattern, select the paint can, and fill the first easel. Then select the second easel, get the airbrush, find a light mottled pattern and start spraying inside that easel.

Selecting BIT-MAP RESOLUTION under the Window menu or double-clicking on the LaserBits tool, brings up a dialog box that allows you to change the resolution in dots per inch (dpi). (LaserBits, LaserBits, sounds familiar.) Though the options here are potentially quite flexible, don't abuse them, or you'll waste processing time.

There are two ways of creating high-res bit-maps, indicated at the bottom of the dialog box. If we maintain the size of the image and indicate 288 dpi (a nice, even, easy-to-compute multiple of 72 dpi, the pixel resolution of bit-maps), the image prints at the size created. However, clicking on the LaserBits tool with the high-res easel selected will blow it up to 4 times the size for editing (288÷72=4).

Note that even though the bits already there seem large, all painting in the blown-up mode occurs with much smaller (or regular size) bits. The existing large bits can be painted over. This is like the FatBits options in reverse, since only the easel is magnified, not editing. This is the



C WITH THE POWER TO GO THE DISTANCE . . .

WHATEVER THAT DISTANCE MIGHT BE.

When you have a challenging program to develop, be sure that your C compiler has the power to see you through to the end. Quickly, and without the hidden limitations that less powerful compilers can surprise you with.

What you need is a professional compiler.

Aztec C from Manx Software has professional power that allows you to fully explore the workings of your imagination . . . and bring your project home a winner.

No other C Compiler gives you so much freedom to create, no matter how large the task. And with Version 3.4, Aztec C is the only C Compiler to provide unlimited data size and unlimited program size. That means no segmentation. Unlimited static and global areas. Unlimited array size.

Imagine the programming possibilities.

STANDARD FEATURES:

- Optimized C with 68010/68020 & 68881
- Macro Assembler with 68000/680x0 & 68881
- Fast Overlay Linker
- Symbolic Debugger
- Macintosh II Support
- Macintosh Libraries
- UNIX Libraries
- MPW Compatibility Libraries
- Unlimited Data Size (no 32k limit)
- Unlimited Program Size (no segmentation)
- Inline Assembly
- Precompiled Headers for Fast Compilations
- 68881, IEEE, and SANE
- MDS Object Support
- TMON, MACSBUG, and MACNOSY Support
- Mouse Based Editor
- Lots of Examples

EXTENDED FEATURES:

- UNIX utilities make, diff, and grep
- vi editor
- Profiler for code optimization
- Assorted tools and utilities

Available for the Macintosh, Apple II, Amiga, MS-DOS/PC-DOS, CP/M-86, TRS-80 ROM, and others.

AZTEC C IS AVAILABLE IN THE FOLLOWING VERSIONS TO SUIT YOUR NEEDS:

Aztec C86/Mac-p Professional System . . . . . $ 199
Includes all of the standard Features

Aztec C86/Mac-d Developer System . . . . . $ 299
Includes all of the standard and extended features

Aztec C86/Mac-c Commercial System . . . . . $ 499
Includes all of the standard and extended features plus library source and 1 year of updates

C Prime . . . . . $ 75
an inexpensive but powerful C development system including C compiler, 68k assembler, linker, libraries, example programs, and utilities

Please circle 194 on reader service card.

MANX

C.O.D., VISA, MasterCard, American Express, wire (domestic and international), and terms are available. One and two day delivery available for all domestic and most international destinations.

Manx Software Systems
One Industrial Way
Eatontown, NJ 07724

Order Now At No Risk Or Call For Information

CALL 1-800-221-0440

In NJ or outside the USA, call 201-542-2121
Telex: 4995812 Fax 201-542-8386

Aztec C is available on a thirty-day money back guarantee. Call now and find out why over 50,000 users give Aztec C one of the highest user-satisfaction ratings in the industry.

You could buy a Macintosh for more, but why?

Buy a qualifying Lisa system and we'll buy the software... FREE up to $425 worth!!.

Macintosh Compatibility

More than 95% of available Macintosh software runs on the Lisa. Call today for our free Lisa Fact Book and see how the Lisa can handle the most popular applications for much less than you would spend on a newer Mac and hard drive. We'll even buy that software...FREE.* It comes standard with a larger 12" screen, detached keyboard with numeric keypad and available in several affordable configurations. Even **HFS is now available** for the Lisa.
Call today. You could be mousing around tomorrow on a Lisa for less!

Ask about our Free Software Deal!

RAM	DRIVE	NEW	USED
1Mb	5 Mb ProFile		$995
1Mb	10 Mb Internal	*$1795	*$1495
1Mb	20 Mb Internal	*$1995	*$1795

*Includes HFS and Software Coupon offer. Please call for details.

Used machines are reconditioned - 90 day Warranty, 30 day satisfaction guarantee. If you're not satisfied within 30 days, we will refund the purchase price of the computer. Your cost is shipping only.

Maccessory "Best Buys"

800K Mac External Drive	$195
Avatex 1200 Baud Modem w/cable	$129
Panasonic Printer 1080AP (Imagewriter compatible)	$299
Mouse Pads	$5
Padded Mac Nylon Carry Case	$99

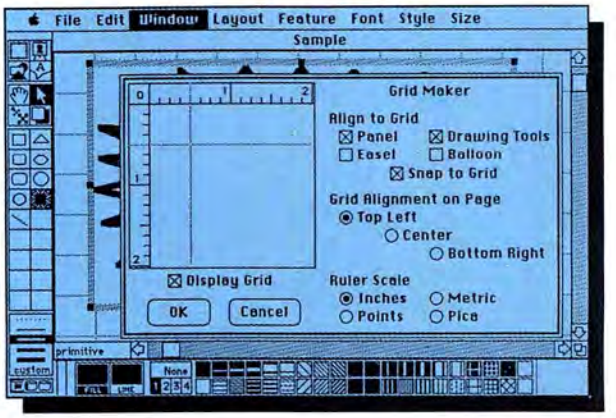
ORDERLINE 800-821-3221
801-752-7631 Questions-Service
For a complete listing of products CALL FOR OUR LATEST CATALOG
VISA/MC AMEX

Sun Remarketing
We Specialize in the Support of Remarketed Apple Products
P.O. Box 4059, Logan, Utah 84321

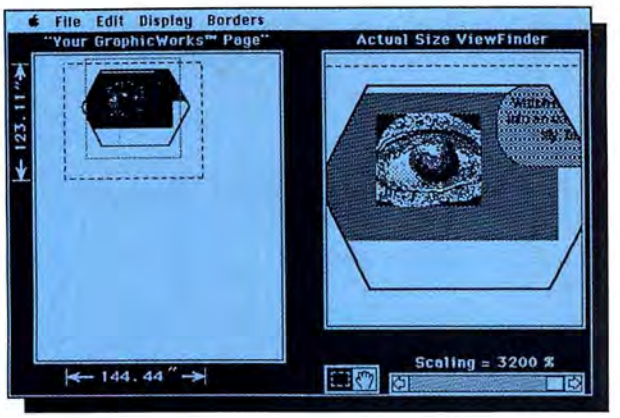
Apple, the Apple logo, HFS, Lisa and Macintosh are registered trademarks of Apple Computer, Inc.

Please circle 19 on reader service card.

A Second Coat of Paint



Grids can be printed either on top of or underneath your artwork.



PosterMaker can scale an image up to 3200 percent of its original size.

recommended method for creating high-res bit-maps, since it's possible to paint in a normal fashion and create an easel at exactly the desired size. If you decide the image looks better at the larger size, go back to the dialog box and select 72 dpi, the same number of bits in the image.

What about the other way? If we maintain the same number of bits in the image and select 288 dpi, the easel we created shrinks to one-quarter the size. What about editing? Generally speaking, you should perform this option only when you're finished with the easel. If you go back and select 72 dpi, maintaining the image size won't always work smoothly.

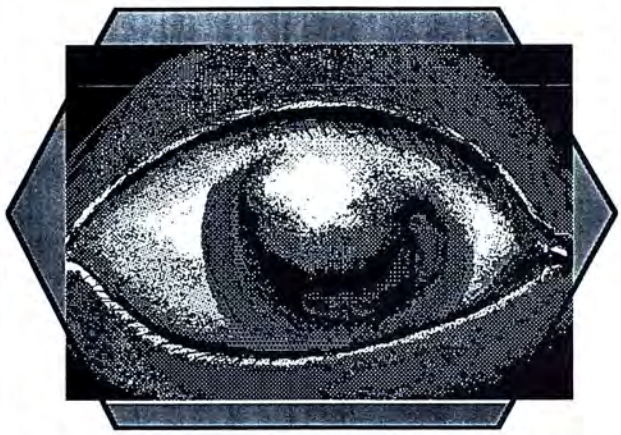
There are other problems. Creating a page-sized panel and comparably large easel, filling it with a pattern and then selecting 288 dpi (the same number of bits in an image) actually caused a LaserWriter with version 23 of PostScript to crash. (This was one of the first LaserWriters released, and that version of PostScript has some known bugs.) The LaserWriter didn't recover, quite to my surprise and that of everyone I consulted.

Even though resolutions of 150 and 300 dpi are listed options, they take longer to process and produce round-off errors. Of course, much larger resolutions are possible, but the images take a while to create. The image quality at 288 dpi is fine, but some unexpected streaking can occur in the printed result. This is probably because fill patterns produce unexpected patterns when condensed. If the print quality of the LaserWriter engine is the culprit, a high-res bit-map might fare better on a Linotronic. Or is the recommended Ink for high-res bit-maps, since it saves on processing time.

INK BLOTS

Now that you have filled the first of your two easels with a pattern, turn back to normal resolution and perform all the Ink options on the second panel. Matte and Copy seem pretty similar. Or creates a transparent image by turning all white pixels

A Second Coat of Paint



A final high-resolution bit-mapped graphic, such as this, takes over an hour to output on a LaserWriter.

to nothing. Xor is similar except that black on black turns white. Bic—well, you have to see it. Not means inverted. After clicking on the particular Ink, click on the drawing area to preserve the change. No big mystery.

ON THE DOWNSIDE

A few of *GraphicWorks'* features are not up to par. Panels that are not rectangular seem to clip all easels, balloons and primitives inside, on the screen, but easels have a way of sneaking outside the border when printed. Also, I would prefer various sizes for the Airbrush, which otherwise performs admirably.

All in all, *GraphicWorks* is a well integrated drawing and painting tool. It works on the assumption that detail and *Paint*-like capabilities are the most important form of Mac graphics. It uses graphic primitives in useful ways—as panels, borders and text frames. The easels are actually primitives of a sort that contain bit-maps in a convenient way—a way that allows easy layering and merging. Separate primitives are obviously handy, although the concept was already there. Align Objects, a typical *Draw*-like feature, can be found in the form of Center, which centers an easel, primitive or balloon in the panel. And once all the elements are in place, the panel is the window that allows you to move the whole, multilayered creation at once. If there was better text handling, *GraphicWorks* could be used for presentation graphics and other sorts of documents.

We still haven't mentioned a lot of other neat features, like *Grid Maker*, a flexible tool for creating grid lines that can be snap-to, and that can be printed on top of or behind the artwork. *PosterMaker* still comes standard with the program, and allows you to blow up a page to 3200%.

One notable item of contrast between *GraphicWorks* 1.1 and *SuperPaint* is that *GraphicWorks* can import TIFF files or high-res files from desktop scanners. The important message here is that MacroMind and Mindscape made good on their promise of supporting the LaserWriter, and they've provided not only primitives, high-res bit-maps and a streamlined interface, but also flexibility and consistency.

PHIL INJE CHANG IS A PUBLISHER AND WRITER WHO EDITS *SHOWPAGE* MAGAZINE, A JOURNAL ABOUT COMPUTERS FOR THE CREATIVE. HE WAS LAST SEEN ON MAUI MAUI.

MACUSER RATING

GraphicWorks $$$$

Follows Mac Interface	■ ■ ■ ◪ □
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ ■ ■ □ □
Consumer Value	■ ■ ■ ◪ □

Comments: A combination drawing and painting program that creates high-resolution bit-maps. **Best Features:** The easel allows great flexibility with bit-maps, and graphic primitives are now a separate tool. **Worst Features:** Text handling is poor, and output mysteriously and permanently crashed a LaserWriter. **List Price:** $99.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. (312) 480-7667. Not copy protected.

US Brand DISKETTES

29¢ EACH 5¼" DS DD Min. 100 39¢ Min. 50 With TYVEC sleeves, tabs labels

49¢ EACH Color 5¼" DS DD Min. 50

79¢ EACH 5¼" IBM-AT HD Min. 50

2 for 1 Replacement Guarantee
if found initially defective w in one year

1.09¢ EACH 3½" DS DD Min. 25 Subject to availability

99¢ EACH 3½" SS DD Min. 25 Subject to availability

Immediate shipping–Guaranteed satisfaction
Call for greater discounts on larger orders
US Mfg. – 100% Lifetime Warranty
Shipping: $3.50 per min. order $1.50 each addt'l lot
MC VISA accepted

1-800-537-1600
OPERATOR NO. 59

MICRO ELECTRONIC PRODUCTS

"I would buy this book."
— Danny Goldman, contributing editor, MacWorld

The only book of its kind. Rates more than 1,000 free (and almost free) programs for the Mac, tells where to get them, and is illustrated with nearly 600 representative screenshots.

A dilithium Press Book. 8½" x 11". Over 400 pages. Paperback, $19.95; **now at your bookstore** or use coupon to order.

CROWN PUBLISHERS, INC., Dept. 798
34 Engelhard Ave., Avenel, N.J. 07001
Please send me FREE (AND ALMOST FREE) SOFTWARE FOR THE MACINTOSH. I enclose $19.95 plus $1.50 postage and handling. N.Y. and N.J. residents add sales tax. *10-day money-back guarantee.*
☐ Enclosed is my check/money order. Or charge my
☐ VISA ☐ MasterCard ☐ AmEx
_____ Exp. Date _____
Signature _____
Name _____
Address _____
City _____ State _____ Zip _____

CROWN PUBLISHERS Inc.

Please circle 98 on reader service card.

With Insight accounting software, you not only capture the numbers, you can interrogate them.

You need some serious cash by next Friday.

Can you get it in time from receivables?

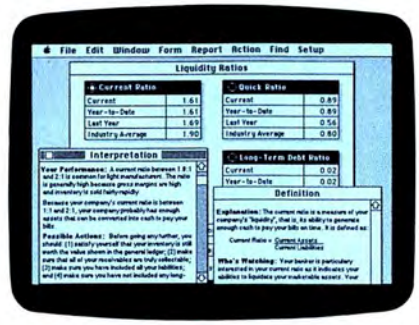
Do some of your customers owe you a big chunk of money this week? If so, are they good for it?

If not, can you get it from the bank? Your credit's been okay; but how will they view this current problem?

Speaking of which, just what caused it? Or who?

With Insight, you'll know. It's the accounting software that not only keeps track of your numbers, but gets them to talk.

For example, Insight tells you who's going to pay you and when—based on their actual payment history. So you'll be dealing with realistic projections, instead of pie in the sky.



The Interpretation window compares your results with industry norms for service firms, manufacturers, distributors; flags potential problem areas and people responsible; and suggests action you can take to improve your results.
The Definition window not only tells you what things mean (like "ratios") but also who's watching them (like your banker), and what accounting and business factors affect them.

Insight goes on to define and analyze your financial information and suggests possible actions to take. For example, Insight lets you know that your current ratio—your short-term assets compared with liabilities—is good and getting better for a company like yours. Yes, you could use a loan. But because Insight

The Graph window shows you trends over the last 12 months of your key financial indicators, comparing them with last year's and with industry norms.

makes it clear that your inventory is turning nicely, your banker knows he's dealing with a temporary blip, not a lost cause.

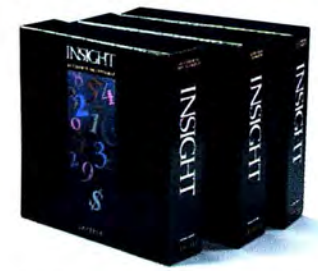
Insight's Accounts Receivable and Billing, General Ledger, and Accounts Payable packages have won top honors from both *Macworld* and *MacUser* for accounting software. And the world's largest accounting firm, Peat Marwick, "has reviewed Insight and certifies that it passes their rigorous testing procedures."*

Peat Marwick has also written a guidebook on how to choose, implement, and make the most of a small business accounting system. For a free copy of their booklet, as well as a free demonstration of Insight, call 1-800-262-6620 (or in Massachusetts, 617-242-7700) for the dealer nearest you.

And see what getting some real insight into your business is all about.

**This certification affirms our assertions presented in the software product description. A copy of their opinion letter is available upon request.* © *1987 Layered, Inc.*

Please circle 70 on reader service card.



MacUser EDITOR'S CHOICE AWARD 1986

MACWORLD WORLD CLASS AWARD 1987

Insight is the most honored accounting software on the market today.

INSIGHT

ACCOUNTING SOFTWARE BY LAYERED

An Educational Cookbook

Course Builder has just the recipe for building your own custom standalone educational applications.

BY SHARON ZARDETTO AKER

WHEN I FIRST SAW SILICON Beach's *World Builder*, an application that lets you write adventure games, I was impressed with the creative possibilities it offered to the non-programmers in the Macintosh world. I also lamented that you were limited to the creation of *Dungeons and Dragons*-type games; the program's potential was much greater.

Well, now there's *Course Builder*, from TeleRobotics International. It's no surprise to find that Bill Appleton, who wrote *World Builder*, wrote this one, too. The adventure game angle is gone. With *Course Builder*, you can create a standalone application that others can use on the Macintosh. Your program can use graphics, animation, digitized sound and *MacInTalk* speech to get your point across. The user can interact with the program by typing, selecting from a menu, choosing radio buttons, clicking and dragging objects around on the screen.

Course Builder is not, for all its flexibility, a general-purpose "language;" it's specifically designed to let you use the Macintosh to teach, train and test students, employees or clients.

Course Builder is simple enough to use, once you understand how to do it, but it's not so simple to get the hang of it. Besides the inherent complexity of a program so rich in features, you have to deal with a poorly organized and written manual. But it's all worth the struggle.

MAIN INGREDIENTS

You create a *Course Builder* course by putting different types of "blocks" into the Course window. Blocks come in two general types: output (text, graphics, sound and animation) and input (mouse, keyboard, menu and buttons). You control the "flow" of the course—what comes after what—by stretching arrows from one block to another. Each block has only one entrance for arrows, but can have up to five exit paths; the path taken depends on the input of the user during that block. In addition, multiple arrows can come from a single exit. Multiple-arrow exits can result in a random selection of the direction the course takes, or you can build conditions into the arrows. Conditional arrows control the flow of the course based on such variables as: the user's previous answers, the number of attempts on a question, the time taken to respond, the user's score so far in the course and the user's score in any particular part of the course.

It doesn't take long for all your arrows to start looking like spaghetti when you're designing an involved course. When things get messy, you can "nest" a group of blocks into a single block in the Course window. Not only does this make life easier in the Course window, but it also opens up a world of possibilities for the course flow. Blocks in a nest are generally executed from left to right, top to bottom; arrows are not necessary unless you want to circumvent this default flow based on some user input. In addition, you can define the flow in a nest in different ways. The course can use any number of blocks within the nest, selected in random order; it can randomly select one block from each row in the nest; or, it can present a scrolling list of block titles from which the user can select the destination.

APPETIZER

Course Builder is difficult to explain without falling into the trap of just enumerating its features, and it's hard to get across the flavor of a program just by listing its ingredients. So, instead, let's start with this scenario of how you'd go about creating a simple course.

Your objective is to teach someone about the Mac interface. Begin by putting the Start block in the Course window, followed by an output block that consists of a design and a text window. Stretch an arrow from the start block to the outblock block.

Open the output block by double-clicking on it, and size the two windows the way you want them. Type some welcoming and instructive sentences in the text window and set it up for speech so *MacInTalk* will read it out loud. Now paste five pictures from a scrapbook into the Design window: a menu, a row of buttons, a mouse, a scroll bar and a Document window.

Click another course block onto the screen: a mouse input block. Stretch an arrow from the output block to this block. By double-clicking on the information bar of the block, you open a window that lets you define the block as having five exit paths. Then, open the "presentation field" of the block, and link it to the Design window of the last block

(the one that shows the interface items). By dragging a rectangle around each of the items in the Design window, you define five "mouse areas" that will register a user's click. Each mouse area has a number that corresponds to one of the five exit paths from the input block. If a user clicks in the first mouse area, the first exit path will be taken, and so on.

Next come five output blocks that present information about each of the interface items; stretch an arrow from each exit path to the appropriate block. These output blocks may contain graphics, text, sound or even animation.

Finally, put a menu input block in the course so after the user has viewed the item clicked on, he can choose to go back to the main window or quit the course. Arrows from each of the five previous blocks enter this input block. This block has two exits: one to a stop block, and one back to the main block. The path the course takes will depend on what menu item the user selects.

After you give the course a test run right within *Course Builder,* you can save it as a standalone application.

A MOVEABLE FEAST

Course Builder has two types of output windows, Design and Text, which can be used singly or together in any block. The Text window is for just that: text, which can be scrolled by the user if necessary, and can be spoken by *MacInTalk.*

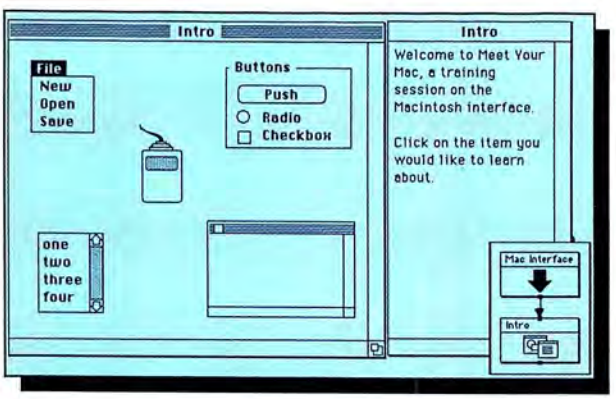
But, the Design window is the crux of *Course Builder's* output. You can use its multilevel abilities for everything from static graphics displays to animation. On the main level of the Design window, you have *MacDraw*-like tools with which you can create simple graphics, editing them with the Font, Style, Pen and Fill menus. (You can also, of course, paste in graphics that were created elsewhere.) The next level, accessed by using the bit-map tool in the Design window, allows you to create a bit-mapped graphic item using basic *MacPaint* tools.

The next level of graphic design is available by selecting the animation command from the Design menu. A Sprite window opens, providing the same drawing tools as in the main Design window. (A sprite is basically an object that can be easily manipulated for animation purposes.) When the Sprite window is opened, the Design window changes a little: controls at the bottom let you create and move between separate animation frames.

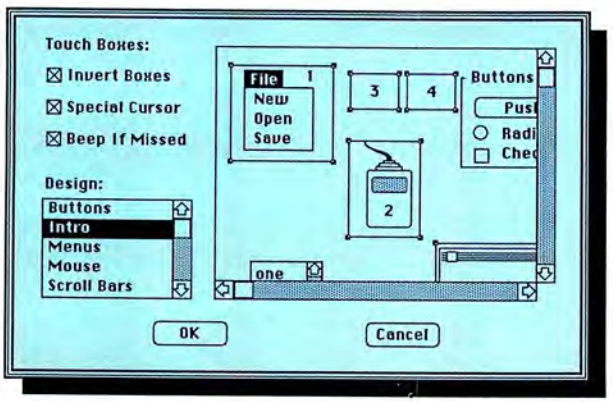
You design the sprite in the Sprite window, then add it to the Design window. While you can't just drag a sprite around in the Design window and have its motion recorded, you don't have to step through a frame at a time, either. You can place a sprite in one frame, and again in another frame, and have *Course Builder* fill in all the intervening frames. If you change the position or size of the sprite at either of the end points, *Course Builder* interpolates all the intervening positions and/or sizes. Instant animation! You can animate more than one sprite at a time, and you can even use different versions of the same sprite for more sophisticated animation effects.

Sprites can also be defined as "dragable," which means that while the course is running the user can drag them around on the screen. Like many other things in *Course Builder,* sprite use and animation falls a little short of being an intuitive process, and the manual isn't much help. Perseverance, however, pays off in the end.

The Design window is also where you add sound to your course: *MacInTalk* speech, digitized sound (*MacNifty* format), or imported *MusicWorks* files.



A single output block can contain both a Design and a Text window. The inset shows the start block and the output block as they appear in the Course window.



It's easy to define "mouse areas" that the user can click in. All you have to do is drag a numbered rectangle around the area.

SPECIALTY OF THE HOUSE

Course Builder lets you solicit input from a user in many different ways. The input can be for controlling the flow of the program, or responses to questions that can be recorded on disk for later review.

The main options are text and numeric input from the keyboard. These appear in the course as dialog boxes with edit fields. When the user input has to be evaluated within the course because it's going to control the flow of the program, there's a

HotTYPE

FOR MACINTOSH OR IBM PC AND ANY POSTSCRIPT PRINTER

BY IMAGE CLUB

SET 1

FinaFont
Sofafont
TipeFont
PAINTBRUSH
CastleFont
LYNZ FONT
AriaFont
SCANING

SET 2

CROME
BRASS
LibertyFont
RUBBERSTAMP
Mecanical FONT
Macntosh Font
SurfStyle
mini-pic picture font

SET 3

COMIC BOOK
Compacto Copy
Compacto Heads
Lunar Font
CobleFont
Pipe font
Dyno Font
SCORE BOARD

SET 4

IMAGECLUB FONT
Crop Caps
THEATER FONT
Signature Font
Fast Lane
Italian Font
Calgary Font
HEADLINER

IMAGE CLUB

Image Club Graphics Inc.
206 - 2915 - 19th Street NE
Calgary, Alberta Canada
T2E 7A2

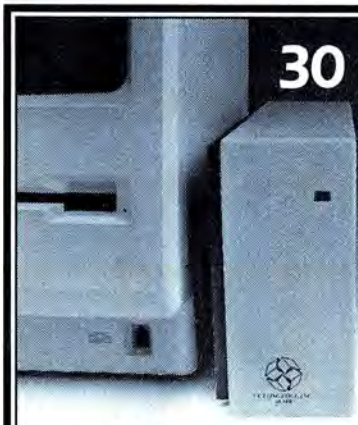
Image Club LaserType are high quality automatically downloadable type faces for your Macintosh or IBM PC and any PostScript™ compatible device. Most fonts include at least one other style eg: bold, thin etc. Kerning supported. Not copy protected. LaserType for the PC works with Ventura Publisher and many others. This ad was created with Image Club LaserType and PageMaker™ and output on the Linotronic™ 100.

Individual Fonts	$ 34 ea
Any 1 Set	$ 149
Any 2 Sets	$ 259
Any 3 Sets	$ 359
All 4 Sets	$ 449

ORDER DIRECT OR SEND CHEQUE IN US FUNDS.
$15 for overnight delivery or $5 for regular. Thank you.

Toll Free Order Desk call 1-800-661-9410

For a free type poster call 1-403-250-1969



30 Mb SCSI
$679.00

Comes with FREE
Intelligent Backup Software

800k DRIVE
$185.00

Why pay more? Great Price and Great Service!

- Lightning fast performance
- Daisy chain up to seven drives
- External SCSI address select switch for easy access
- Exclusive data Y connector — external resistor terminator allows drive to be changed to any position on the SCSI chain within seconds
- 5½" high x 2½" wide x 8½" long — twice as small as all other leading drives
- Fanless — unique conductive cooling system
- Ultra low power — **extremely quiet**
- Compact, rugged construction for easy portability
- Six month warranty
- For 512, 512E, Mac Plus
- Quiet performance
- Cable included
- State-of-the-art workhorse: **MTBF rating over 11,000 hrs.**
- Brushless D.C. spindle motor
- LED — Indicates when quiet drive is running

CUTTING EDGE, INC.
100 Freedom Lane Evanston, Wyoming 82930
1-800-443-5199

Immediate Delivery / VISA/MC/AMEX accepted

Please circle 104 on reader service card.

Studio Session™

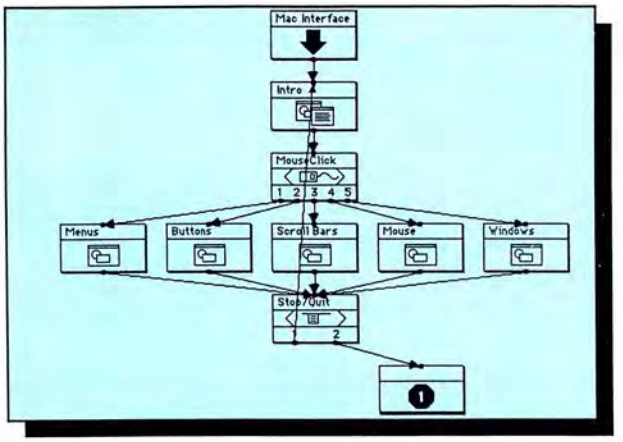
For more information about MacUser's 1986 Music Program of the year, call 415-332-6427 or see your local software dealer.

If you already own Studio Session, have you heard about our music and sound disks?...*Heavy Metal Session, Country Session* and *Grand Piano*. Each disk comes with new songs and instruments and costs less than $20.

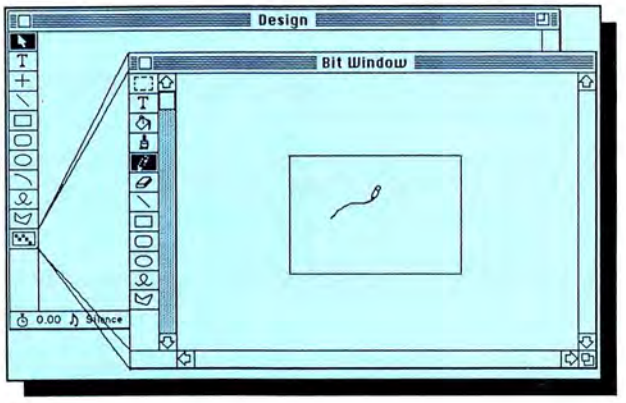
BOGAS PRODUCTIONS
520 Cashew Court
San Ramon, CA 94583

Please circle 149 on reader service card.

An Educational Cookbook



The simple course described in the article would look like this in the Course window. The mouse click block is an input block with five possible exits. Each of the five output blocks flow back to a single menu input block, which has only two exits: the end of the course, or back to the beginning.



The Design window has *MacDraw*-like tools, and icons you use to add sound. You can also open a Bit window with the bit-map tool to access *MacPaint*-like tools for more intricate designs. The scroll bar next to the Bit tools provides eight levels of magnification.

variety of tests to apply: does the input contain a certain word, does it match exactly a specific word or phrase, is the number less than, or more than the input, and so on.

You can also create a menu for the user to use (although this has severe limitations, as noted below), a list of radio buttons or a scrollable list of words/titles from which she can select. But the most versatile user input options are mouse areas and sprite bays. You define a mouse area for any Design window by dragging a numbered rectangle around it. When the user clicks in the area

Course Builder 2.0

A major upgrade to *Course Builder* (the 2.0 version, $395 plus $10 shipping and handling).

Video Builder, ($695 plus shipping and handling) is coming fast on the heels of the original release.

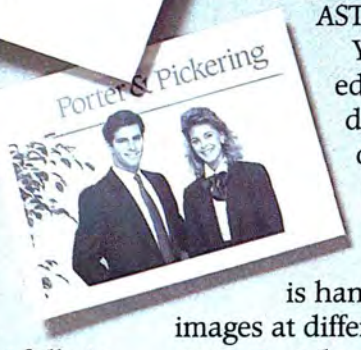
The main addition to the original is the availability of numeric variables. This "simple" improvement includes:

- Course variables that can be used as counters or for statistics and can be saved in a disk report for later review.
- Calculation blocks that can be used to combine variables resulting in such things as randomly-generated math problems.
- Sprite animation based on variable values, which includes the capability to create items like gauges.

Another new item is a File menu that's always available (unlike the menu created in a menu input block). The File menu lets the user open an old session, save the current one and start a new one, as well as quit at any point in the course.

And if you think the current *Course Builder* can make spaghetti with all its flow arrows, this one allows 10 exit paths from every block instead of five.

"Buying the wrong image scanner split up our partnership."



We weren't even in business 24 hours when it happened. My partner, Elliot, bought a page scanner that would divide our partnership, literally.

It happened when Elliot couldn't edit the full picture on the Macintosh™ in one piece. There he was, tediously switching back and forth between the scanner program and paint program, trying to edit a portion at a time.

Finally, in a fit of frustration he roared that the picture wasn't big enough for the two of us and one would have to go.

So I went. Straight to my Apple® dealer and found a scanner designed especially for graphic applications, the AST TurboScan.™

You see, TurboScan edits full-page, 300 dpi images all at once. In fact, it can display three documents on one screen. Which is handy for comparing images at different scan settings and pasting together the preferred portions of each.

And its full-featured graphic editor provides 14 paint options for full-page editing, such as selection rectangle, pencil, hand, paint brush, paint bucket, text, line, eraser and more. Plus, eight fonts in sizes from 7 to 72 points, 39 fill and border patterns and five viewing options. I bought it immediately.

By the time I got back to the office, I found Elliot's final attempt in the trash, along with the scanner. The flyer was a fiasco, but our partnership was saved. Elliot was ready to try the AST TurboScan.

To keep your partnership in one piece, ask for AST TurboScan. Call AST today to find your nearest AST-authorized Apple dealer: **(714) 553-0340.** BBS: (714) 660-9175. FAX: (714) 660-8063.

AST® RESEARCH INC.

We Make Apples Grow!

AST and AST logo registered and AST TurboScan trademark AST Research, Inc. Apple registered and Macintosh trademark Apple Computer, Inc. Copyright © 1987 AST Research, Inc. All rights reserved.

TurboScan keeps the partnership together by editing the entire image at once.

Re-ink ANY FABRIC RIBBON automatically for LESS THAN 5 CENTS with

MAC INKER™

Over 11,000 cartridges and spools supported!

MAC INKER™

IMAGEWRITER I AND II	$42.00
UNIVERSAL (cartridge or spool)	$68.50
MULTICOLOR IMAGEWRITER	$80.00
MULTICOLOR ADAPTER ONLY	$40.00

Shipping (first unit) $3.00

■ Lubricated DM INK EXTENDS PRINT-HEAD LIFE! Black, blue, brown, red, green, yellow, purple, orange - 2 oz. bottle $3.00; pint $18.50. Gold, silver, indelible and OCR inks available. Heat transfer MacInkers and ink available plus a complete range of accessories for special applications.
■ Top quality, GUARANTEED, double density ribbon cartridges and reloads available.
■ DEDICATED MAC INKERS AVAILABLE FOR EXTRA LARGE OR SPECIAL CARTRIDGES.

MERCURY MODEM

$149.00
Shipping $4.00

*100% Hayes™ compatible!

■ 24 month warranty. ■ Status lights. ■ Speaker. ■ 300/1200 baud. ■ Call progress detection.

Quick Link communications software

MS DOS and Macintosh	$29.95
with modem	15.00
Cable	15.00

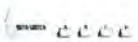
*Hayes is a trademark of Hayes Microproducts.

Connect up to 4 peripherals!

DATA SWITCHES
2 port **$46.00**
4 port **$59.00**
Shipping $4.00

Parallel, serial, 2 or 4 way, crossed, etc.

MAC SWITCHES
$50.00
Cable **$15.00**
Shipping $4.00



8 or 9 pin models available

SPECIAL OFFER: For orders of $100.00 or more. Say you saw it in MacUser and get a free keychain, beeper and flashlight combined! A $15.00 value!

ORDER TOLL-FREE
1-800-547-3303
In Oregon (503) 626-2291 (24 hour line)
We are and always will be your
Computer Friends®
14250 N.W. Science Park Drive
Portland, OR 97229, Telex 4949559
Dealer Inquiries Welcome.

Please circle 200 on reader service card.

An Educational Cookbook

Video Builder

I attended Apple's Macademia conference in Boston last spring. The first night was "third-party vendor" night, and a dozen or more booths were set up to show off products. There were a few people at each booth—sometimes even as many as a half-dozen—with one exception: the TeleRobotics booth, where they should have been giving out tickets so everyone could get a turn in the front row.

The attraction was not just *Course Builder*, it was *"Course Builder Plus": Video Builder. Video Builder* is *Course Builder* with a special output block that you can add to the course. This output block lets you control a videodisc player, a videotape recorder, or a slide projector. Just imagine the possibilities from the educational standpoint: a student working at the Macintosh, interacting with a video disc, retrieving information or controlling a self-paced learning session.

Video Builder currently has drivers for Sony and Panasonic laser machines, the Sony 8 mm videotape recorder, and a Mast slide projector. More drivers are being developed, and the compatible Sony equipment is available directly from TeleRobotics for $695 plus shipping and handling.

during a course, *Course Builder* detects the click and branches out of the input block along the appropriate arrow. Mouse areas can be overlapped or nested, in which case the lower-numbered areas take precedence.

Sprite bays combine dragable sprites with mouse areas. The program detects when the user has dragged a sprite into a mouse area: when a sprite is in its "bay," the input is considered correct and the program can branch accordingly.

User input is for more than just controlling the direction of course: inputs can be recorded in a disk file for later evaluation. Each input block has a special window that lets you identify the correct answer, and assign a number of points for the correct input; you can even set a time limit for answering.

Reports can record all sorts of statistics: times, scores, percent correct and exit paths for the whole course, a section of the course or a single block. A special report-reading utility is included with *Course Builder* so you can review a user's performance.

NOT ON THE MENU

Course Builder is an amazing piece of work. Its potential is so great, I'm willing to overlook some of its rough edges—and I don't do that for just anyone. There are, however, areas that need improvement, both in the capabilities of the finished product, and in the *Course Builder* environment itself.

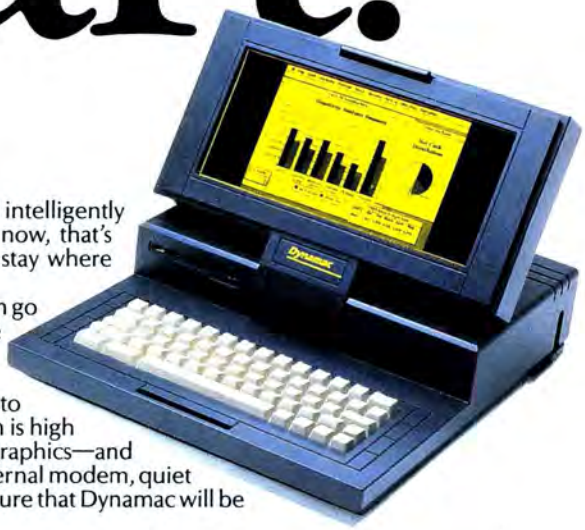
The most obvious flaw has to do with menu inputs. You can have only one menu at a time, and when the course is waiting for a menu selection, that's all it can do. This "modal menu" is a contradiction in Macintosh terms.

Next is the fact that only radio buttons are available, and they can act like push buttons: click on one and something happens immediately. You can prevent this, but it shouldn't be possible at all; that's another Mac interface transgression.

The third large flaw is the way windows change as the course moves

When you work on animation, the Design window provides frame control. You can design sprites in the Sprite window, or paste them in from the Clipboard.

Smart.



Introducing DYNAMAC. Because the world of information doesn't sit still.

Your Macintosh™ Computer has moved you easily and intelligently through a full spectrum of desktop solutions. But, until now, that's where the movement stopped. Desktop solutions had to stay where your Macintosh did—on your desk.

With the introduction of Dynamac, however, solutions can go wherever problems or opportunities are. Not just because of the Dynamac's small, sleek physical dimensions but because of its very big performance dimensions.

Up to 40 megabytes of hard disk storage and up to 4 megabytes of main memory are built in. Dynamac's screen is high resolution gold Electroluminescent—equal to the finest graphics—and displays 46% more information than the Macintosh. The internal modem, quiet fan, high-grade surge protector and many other features ensure that Dynamac will be an office-quality resource wherever it goes to work.

Moves.

Where Macintosh leaves off, Dynamac is picked up... packed with features and packaged in a sleek black case. It goes easily across town or across the country; it comes home with you as naturally as your briefcase.

Dynamac is a hardy traveler, but also one with savoir faire. The internal 300/1200 Baud modem operates on both U.S. and CCITT international standards; compatibility at 110/220 volts, 50/60 Hz is built in... as is an E-Machine interface for a direct connection to the Big Picture™ monitor.

Dynamac is available in more than two dozen different configurations—with prices starting at just under $5,000. All options and upgrades come from a single point of warranty.

Dynamac. It lets you leave the office without getting left behind.

For additional information, please contact Dynamac Computer Products, Inc., 1536 Cole Boulevard, Suite 252, Golden, CO 80401. (303) 233-0305.

Dynamac

Because the world of information doesn't sit still.

Macintosh is a trademark of Apple Computer, Inc. Big Picture and E-Machine are trademarks of E-Machines, Inc.
Dynamac is a trademark of Dynamac Computer Products, Inc. Industrial design by \'ej\

Please circle 273 on reader service card.

HOT NEW PROGRAMS!

Public Domain / Shareware

Editor's Choices

★★★★ **Four-Star Rated in MacUser** ★★★★

☐ **7** Switcher, disk dump **$9**
☐ **29** Red Ryder comm, w/doc (shareware) . **$9**

Featured in MacWorld Magazine

April '86 ☐ **86** Twelve top-rated programs! Best of P.D.—communications, utilities, games, D/A's **$9**
July '87 ☐ **125** Fkeys Manager, Keystring and selected Fkeys **$9**
April '87 ☐ **106,119** Fun! ScreenWreckers, savers, pranks **$18**
Aug '87 ☐ **153** FileStar 1.0, DeskZap, SuperHelp, Convert + more . **$9**

Graphics

☐ **104,105** Decorate with lots of borders **$18**
☐ **116,117** Clickart, Slideshow, Viewpaint **$18**
☐ **118** Mandelbrot: Hi res fractal design **$9**
☐ **120** Mac-a-Mug: create millions of faces **$9**
☐ **121** MusicPaint: nearly MacPaint + music . . **$9**
☐ **145** PacPaint pictures with modem un/compresser **$9**

Communication

☐ **107** MacTalk—Trendy Mac Magazine **$9**
☐ **122,123** World War IV–Setup BBS, w/doc **$18**

Desk Accessories

☐ **102** Best of D/A's–Games, utilities term emul . **$9**
☐ **132** Mac's Headroom—Latest craze! More DAs **$9**

Fonts

☐ **90** Boston II—laser quality on Imagewriter . **$9**
☐ **133** Beverly Hills—sharpest (Imagewrtr I,II) . **$9**

Games

☐ **103** Best of Games–Fast action with Billiards, Megaroids, Spacewars, etc. **$9**
☐ **129** Zero Gravity w/ character animation **$9**
☐ **134** Wheel of Fortune games — action, sound, graphics! **$9**

Home/Business

☐ **76** PageMaker–40 templates for cards, signs, letterhead, envelopes **$9**
☐ **109** Typing Tutor, U.S. Geog., Project Outliner . **$9**

Nudes

☐ **49** ☐ **65** ☐ **66** Adults only pictures **$9ea**

Programming

☐ **44** XLISP; Art. Intel. Lang.—latest version . **$9**
☐ **124** Motorola 6800 cross assembler **$9**

Sound

☐ **91,101** Install and play digitized sounds on your keyboard (2 disks) **$18**

Utilities

☐ **5** Code Cracking with doc., FEdit **$9**
☐ **6,89** ResEd: edit fonts & icons, doc **$18**
☐ **73** CE Calendar: personalize (Shareware) . . **$9**
☐ **100** Oasis–Alternate Finder, HFS Find **$9**
☐ **130** Disk Library Database, Fast formatter (shareware) **$9**
☐ **Book:** 150 pg. directory of disks **$7.95**
☐ **1 Yr. Membership:** book, quarterly bulletins, plus many discounts **$20**
☐ **Library:** Complete set—150 disks **$795**

SPECIAL OFFER!
Any 3 Disks+Book *PLUS!* 1 Yr. Membership
***ONLY* $39.95** (+$4 S/H)

Add $4 ($10 foreign) for shipping & handling or $2 ($5 foreign) if ordering book only. CA orders add sales tax.

Enclosed $_____ by ☐ Check ☐ VISA ☐ MC
Card No. _____ Exp. ___
Name _____
Address _____
City _____ State ___ Zip _____

THE ◆ PUBLIC ◆ DOMAIN EXCHANGE
2074C Walsh Avenue, #914
Santa Clara, CA 95050

CALL NOW!
800-331-8125
In CA 408-496-0624

Dealer Inquiries Invited

Please circle 5 on reader service card.

An Educational Cookbook

from block to block. First the window is resized, then the contents change. This results in an awkward visual presentation.

There are lots of minor things that may belong on a wish list for the next version, but would have been easy to include right at the start, such as definable cursors, the option to hide the cursor and a choice of window types (including a full-screen option).

The *Course Builder* environment itself could use some polishing. You find yourself in modal dialogs too often, restricting just what you can do next in the way of block design. There should be a way to define some standard window sizes; unless you use the default set-up, it's impossible to keep windows the same from one block to the next.

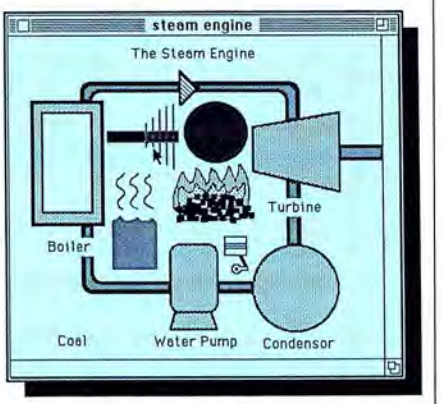
Course Builder's biggest problem of all is probably the most easily remedied: the documentation. It guarantees TeleRobotics a lot of support calls. It fails on all counts: organization, content and index. Even the page layout is so poor as to be distracting.

Each of the manual's many sections covers a *Course Builder* capability in an entirely too-brief manner. There is no attempt made to show how the program's different options work together (and if they're not working together, they're not working at all). There's no mention of how to tweak *MacInTalk*'s pronunciations, or how report passwords are utilized, or how to use the report reader utility.

The documentation is so segmented that even the page numbering is fragmented into an impossible to follow series of letters and numbers. The writers often slip into the assumption that the reader has some programming background, but even a competent programmer will find this manual less than helpful.

AFTER DINNER MINTS

It's worth repeating that you create standalone applications with *Course Builder*. If you sell your application, TeleRobotics standards are generous: no payment to them for the first $20,000, and only a 5% royalty on sales over that figure.



Dragable sprites are objects that the user can drag around on the screen. Sprite bays are defined areas where the objects belong. In this sample screen, the user is expected to drag the objects in the center into their proper positions.

Some of *Course Builder's* shortcomings have already been addressed in an update which should be out by the time you read this; the manual is also undergoing revision (though nothing short of a total rewrite would help). But, even as it stands, *Course Builder* is a valuable tool for many people.

SHARON ZARDETTO AKER IS A MACUSER CONTRIBUTING EDITOR AND AUTHOR OF MANY GREAT COMPUTER BOOKS.

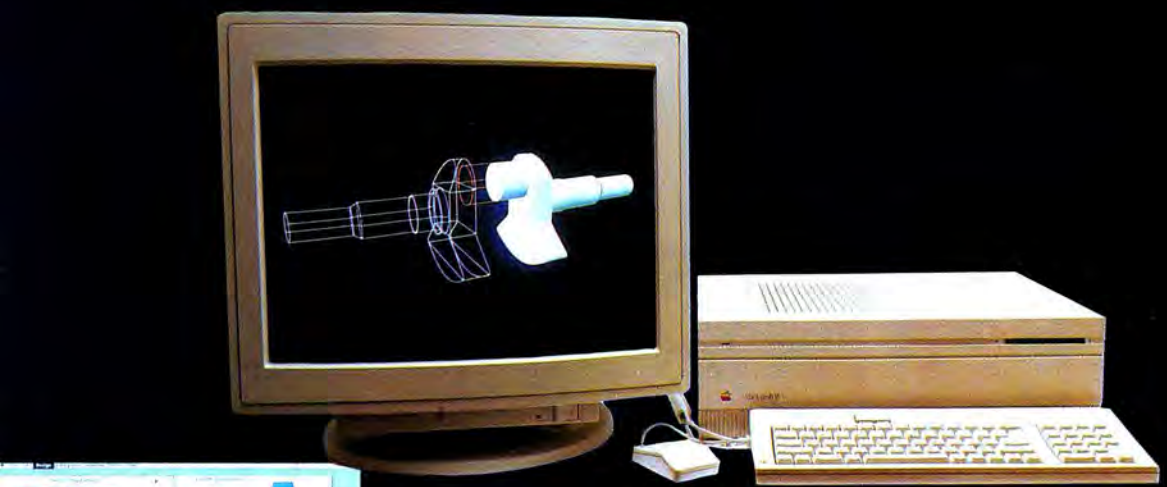
MACUSER RATING

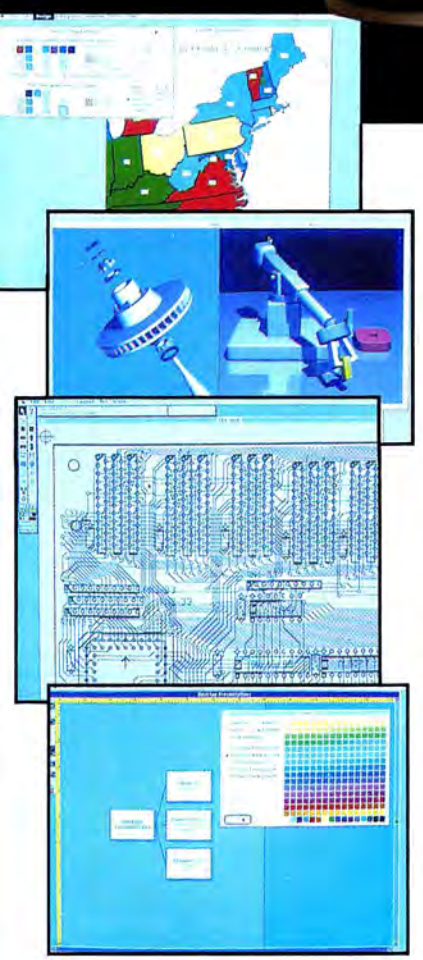
Course Builder ★★★½

Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ □ □ □ □
On-Screen Help	None
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ □

Comments: Easy to master on a superficial level, more difficult at more sophisticated levels. Although there's little help in the manual, telephone calls are answered quickly, courteously and competently (on your nickel). Don't be put off by the fact that this is really a programming language, because it doesn't feel like one. **Best Features:** You can create double-clickable applications which in turn can create report files so you can check the user/student input during the course. **Worst Features:** The documentation; severely limited menus in the finished product; you can only use radio buttons. *Course Builder,* $300 plus $10 shipping and handling. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, Tennessee 37931. (615) 690-5600. Not copy protected.

The best color graphics system for the Macintosh II.





See the difference...know the reasons

You are about to enter a new dimension in personal computing with the PCPC II™, a high resolution color graphics system for the Macintosh II. The PCPC II 19 inch monitor gives you a giant window into the color world of computer aided design, computer modeling, advertising, presentation graphics, desktop publishing and unlimited color applications. Designed for the most demanding professionals, the PCPC II provides the power and performance required to be your creative best.

Look at a PCPC II and experience the sharpest and most vivid colors possible. Witness a dazzling display of 256 colors from a palette of 16.8 million hues for the most realistic images possible. And for monochrome graphics, 256 shades of gray provide maximum detailing.

At PCPC, quality is an essential part of the design. Quality starts with state-of-the-art monolithic CMOS technology, Zip-pack video RAM for high reliability, and the lowest possible parts count to assure long life and trouble-free use. With 768K of video RAM, the PCPC II provides a resolution of 1024 x 768 with 8 bits per pixel. The non-interlaced display ensures an absolutely flicker-free screen and the sharpest picture imaginable. The high resolution monitor (previously found only on engineering workstations costing many thousands of dollars more) displays your work in its best light. The monitor's super fine pitch (0.31 mm) means you get incredible clarity. And for your personal comfort, the PCPC II features an anti-glare coating and a tilt-swivel base.

Now that you know the true colors of quality, don't compromise!

Personal Computer Peripherals Corp.
6204 Benjamin Road, Tampa, Florida 33634
(813) 884-3092 (800) 622-2888

Please circle 12 on reader service card.

© 1987 PCPC. PCPC II is a trademark of PCPC. Macintosh is a trademark licensed to Apple Computer, Inc. PCB design created at PCPC with McCAD from Vamp, Inc. "Floor Plan," and "Crank" were created with Design and Solid Dimensions from Visual Information, Inc. "Turbine" and "Robot" were created by Apple Computer, Inc. "Sample East U.S. Map" was created with MapMaker from Select Micro Systems, Inc. "Desktop Presentation" was created with MORE from Living Videotext, Inc.

Music Between the Keys

M and Jam Factory take you to parts of the musical spectrum you never knew existed.

MUSIC SOFTWARE ON THE MACINTOSH has come a long way since the first dings and wonks emerged from *MusicWorks*. Today, Macs play Beethoven symphonies, sit in for a rock star's entire back-up band, transcribe orchestral scores with typeset quality and synchronize music, sound effects and images in Hollywood's biggest studios.

Much of the more advanced music software deals with MIDI, the Musical Instrument Digital Interface that is now a common language among not only just synthesizers, but also audio processors, mixers, sound-effects generators and all sorts of other studio tools. MIDI programs generally fall into two categories: sequencers, which record musical events such as notes played on a keyboard, and let you edit them and play them back; and patch editors, which allow easy access to the digital parameters that make up a synthesizer's sound, or "patch."

M and *Jam Factory* are MIDI programs, but they are very different from the norm. They're concerned with composition as a continuous process. You might think of them as musical "idea generators" or, as their creators call them, "intelligent instruments." They produce fully orchestrated music in real time, and let you control the patterns and parameters that determine *the way* the music is being produced, while leaving the mundane task of actually *playing* the notes to the computer.

BY PAUL D. LEHERMAN

In some ways they bear a superficial resemblance to Laurie Spiegel's *Music Mouse* (reviewed in *MacUser*, May, 1987). But while *Music Mouse* is easy both to describe and to use, trying to do justice to *M* and *Jam Factory* in print is about as rewarding a task as describing a hologram to a blind person. They are the most complex music applications—and possibly the most complex applications of any kind—in Mac history. I have been playing with them for over a month, and it seems like I've barely scratched their surfaces.

Like a sequencer, they will record what you play on a MIDI keyboard, but their purpose is not just to play back that input; it's to use it as raw material for musical permutations and improvisations generated by the computer. The differences between the programs are subtle, but put very broadly, *M* is oriented towards working with pre-existing musical material, while *Jam Factory* is better suited for dealing with music being played in while it is running.

WHAT M DOES

The best way to describe these programs is simply to tour their screens. Since they contain very similar elements (albeit laid out differently), let's look closely at just one: *M*.

In the upper right corner of the *M* screen is the Pattern window. The user has control over 24 musical patterns, with four active at any one time. These patterns can be entered by playing them on a MIDI keyboard and recording the pitches and durations; or recording just the pitches and storing them in a "pitch distribution pattern;" or importing them from a MIDI File created by another program (see the sidebar); or in various other ways. When you click on START, the four active patterns play, repeating over and over. While they play, the tempo and length of each individual pattern can be adjusted, new notes can be added, or a pattern can be turned off or even erased without disturbing the others.

You can also fiddle with the order

STUART SHARPE

of the notes within the patterns, using the six Note Order boxes. These determine whether the pattern will play exactly as it was recorded, or whether it will "scramble" itself and then play over and over in the new order, or whether it will constantly re-order itself. Each box gives a different set of note-order parameters for the four patterns, and clicking on a box instantly invokes the parameters associated with it.

The note-order choices are not absolute: Double-clicking on one of the Note Order boxes opens it up to reveal that you can specify *probabilities* for each type of operation, so that, for example, Pattern 3 will play

in its original form for 19 percent of the time, will play in a re-ordered form 58 percent of the time and will play totally randomly the other 23 percent of the time.

Next to the Pattern window is the Input window, where the fate of incoming MIDI data is decided. Notes from a MIDI keyboard can be recorded into a pattern, echoed out to a MIDI synthesizer "live," used to transpose existing patterns or sent to the Input Control System (about which more later).

Filling the lower half of the screen is the Variables window. At the top of the window are the 16 Sound Choice boxes. Clicking on a box sends a MIDI program (or patch) change on each of the 16 MIDI channels, thereby changing the sound of whatever synthesizer is receiving data on each MIDI channel. You can edit the boxes so that any program change number (MIDI allows 128 of them) can be sent on any MIDI channel.

Next are the six Transposition boxes, which when clicked transpose each of the patterns at its own specified interval. Again, these boxes are programmable.

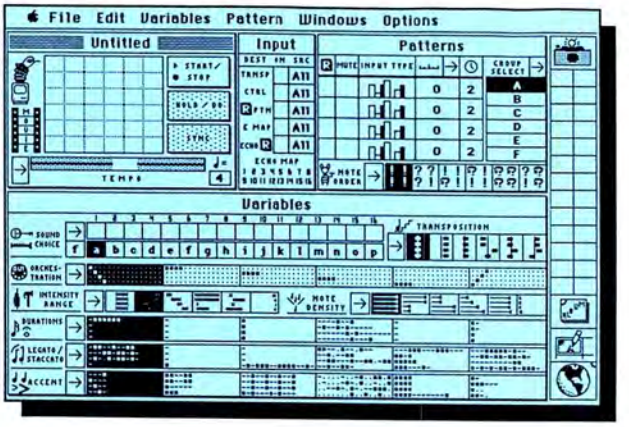
Then come the six Orchestration boxes, in which you determine which MIDI channel (or channels, for you are allowed more than one) will get each pattern. Below that are the six Intensity Range boxes, in which you can specify a range of MIDI velocities that each pattern generates. (Velocity usually controls volume— that is, the faster a key moves, the louder the note sounds— but depending on how a particular synthesizer patch is set up, it can also determine other factors.) This range can be as small as a single value, or it can cover the entire MIDI range.

Next are the Note Density boxes which let you specify how many of the notes in each pattern will actually be played. If the note density is set to 100 percent, all the notes in the pattern will sound, while if it is set to 25 percent, only one-fourth of the notes will play. Which notes are left out is decided randomly with each cycle of the pattern.

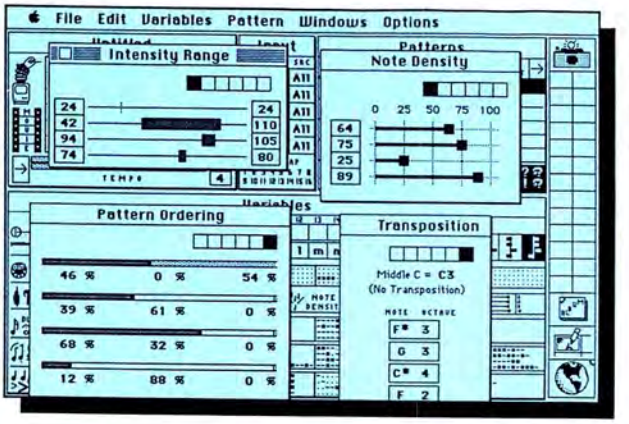
Now we get to the Cyclic Editor boxes, of which there are three sets of six. One set of cyclic editors sets up patterns for dealing with note durations, another handles articulations (whether the notes fill completely the spaces left for them or leave gaps) and the third controls velocity accents, which act within the intensity range. These patterns, which contain up to 16 events each, are *completely separate* from the note patterns. Each event in these patterns is assigned a value of 0 to 4, with higher values meaning longer or louder notes. If you like, you can assign to an event a *range* of values, in which case an element of chance will be introduced into the cycles.

These patterns add to the variety of the music: if you have a note pattern that's 11 events long, and a duration pattern that's 15 events long, then the two will merrily cycle away independently with no repetition of the same music until 165 (11 X 15) notes have been played!

Keep in mind that all of these adjustments can be made while the music is playing, so you get instant feedback on your parameters.



This is the main screen of *M*. No one said it would be easy.



***M*, with Intensity Range, Note Density, Pattern Ordering and Transposition windows open. All of these windows can be edited.**

SAVING AND PERFORMING

When you have the screen to the point where all the boxes are edited and selected to your liking, you can take a "snapshot" of it. Up to 26 snapshots can be stored in one file. Since a snapshot recalls the settings of all the boxes, changing snapshots (which can be done either from the Mac keyboard or with the mouse) can effect a radical change in the music—far more than can be done by switching a single box. If you consider a snapshot as a musical "scene," the program gives you the option of performances in which any scene can be made to follow any other.

The upper left corner of the screen contains the Global Control window. Here you'll find the start-stop control, a Hold/Do button that lets you choose several parameters and then change them all at once (like a snapshot, only without storing the selection), and a Sync button that

The Word is Out...

"Absolutely AMAZING word processing program. I want it WriteNow!"

Robert Forras, MacTimes

"WriteNow feels perfect.... It's hot. Highly recommended. This is THE word processor to use if you use a Mac."

John Dvorak, San Francisco Examiner

"Right now, WriteNow comes the closest to delivering on the promise of future word processing."

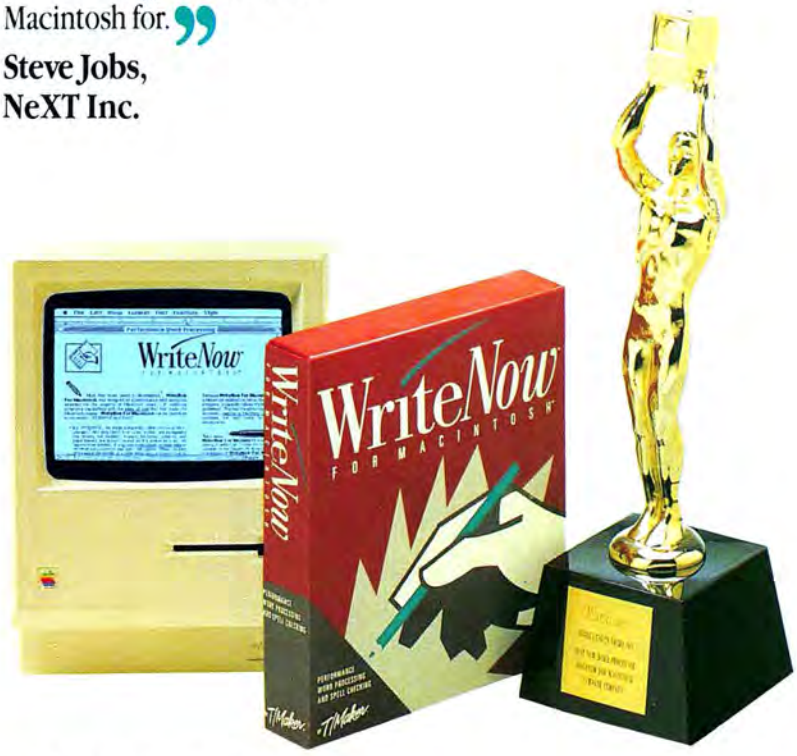
Michael Miller, InfoWorld

"This is the word processor that we designed and built Macintosh for."

Steve Jobs, NeXT Inc.

"T/Maker's WriteNow For Macintosh is a polished word processor that retains the elegance of MacWrite but adds features like multiple windows, footnotes, multiple columns, and a spell checker."

Dan Farber, MacWorld Magazine



Best New Word Processor
MacUser Magazine 1986

"...WriteNow adds up to a great new word processor. ...its ease of use and speed put it way ahead of Microsoft Word and MacWrite for most jobs."

Vicky Jo Varner, The MACazine

WriteNow
FOR MACINTOSH™

Performance Word Processing for the Macintosh

To learn more, see your local computer dealer today, or call or write to:
T/Maker Company, 1973 Landings Drive, Mountain View, CA 94043 (415) 962-0195

Suggested retail price of WriteNow For Macintosh is $175. Runs on any Macintosh.

T/Maker®

Pagemaker 2.0 now imports & exports WriteNow documents.

T/Maker is a registered trademark of T/Maker Co. WriteNow is a trademark licensed to T/Maker Co.
Macintosh and MacWrite are trademarks of Apple Computer, Inc.

Please circle 29 on reader service card.

MIDI Files

MIDI Files have been proposed as a standard by Opcode Systems, one of the first producers of MIDI software for the Macintosh, for exchanging MIDI sequence information between different manufacturers' software. This proposed standard even goes so far as to allow exchange between different types of computers. Since one music program, no matter how good, cannot be all things to all users, this idea, which will allow users to take advantage of different programs' various strengths, is highly laudable. (There are other good reasons for it, too, such as allowing studios that have different sequencers to exchange files over the phone.)

Unfortunately, only two manufacturers have implemented MIDI Files: Opcode, in their relatively primitive *Sequencer* 2.1 and 2.5, and Intelligent Music, in *M* and *Jam Factory*. Some other manufacturers have said that they intend to make their products MIDI File-compatibile, but no such products have appeared on the market yet. Still other companies—most notably Mark of the Unicorn, makers of the high-end *Performer* sequencer and *Professional Composer* notation generator—have made it quite clear they have no intention of making their products compatible.

resets all the patterns to start together. There is also a tempo control with a Range Bar that, like the intensity controls, defines either a single value for the tempo or a range of values over which the tempo can be varied.

Also in this box is one of *M*'s most powerful features, the "conducting" grid. *M* lets you assign any of the program's variables—pattern length, note order, pattern group, tempo, sound choice, transposition, orchestration, intensity, density, duration, articulation and/or accent—to the X or Y axis of this grid, in either a positive or negative direction. Holding the mouse button and moving the mouse around the grid changes whichever variables you have selected, by jumping from one variable box to the next or, in the case of tempo, moving smoothly over the range selected in the Global Control window. As many variables as you like can be assigned to each axis, so mouse movements can have very dramatic effects.

Here's an example of how the conducting grid might be used. Suppose you set it up so that intensities increase as you move to the right, the tempo increases as you move to the left, density increases as you move upward and transposition and articulation increase as you move down. Now if you put the mouse at the upper right corner of the grid and click, the patterns will play slowly, with maximum intensity, few silences, and short articulations, in a low key. Hold the mouse button and move it downward, and the music becomes more legato, with more rests, in a higher key; while moving it to the left speeds the music up and makes it softer.

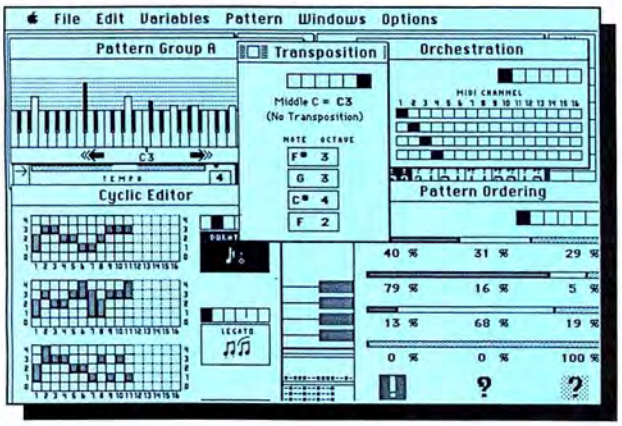
The Global Control window also has an icon marked "Movie." Clicking on this icon causes all the MIDI information being generated by the program to be stored on disk as a MIDI File, where it can be used in other programs, such as *Jam Factory* and Opcode Systems' *Sequencer* (see sidebar).

Last, but certainly not least, is the Input Control System. This turns the MIDI keyboard into a controller for the entire program, by assigning specific functions to specific keys or combinations; for example, hitting middle C starts the music playing. Other keys turn individual patterns on and off, access snapshots, or change any variable. You can even adjust the tempo in real time by "tapping" a low F in rhythm.

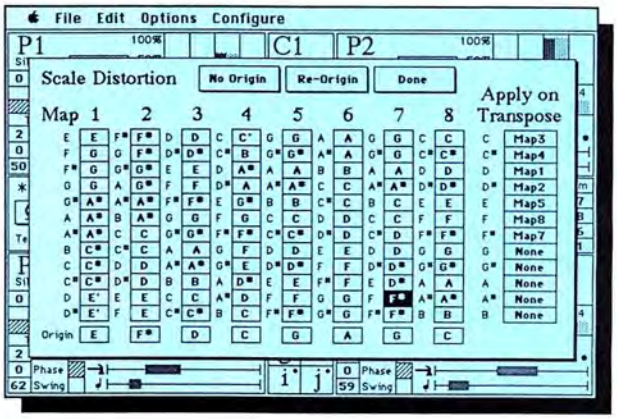
That, with a lot left out, is *M*. Now to thoroughly confuse you, we'll take a look at *Jam Factory*.

WHAT JAM FACTORY DOES

Jam Factory contains many of the features just described, but, generally speaking, works more with MIDI data coming into the program in real time. There are four Players (roughly equivalent to *M*'s Patterns), each of which can handle incoming data and instantly and continuously generate variations on it. That means up to



***M*, with various editing windows open. All windows can be worked in at the same time, while the music is running.**



***Jam Factory* showing the Scale Distortion window.**

MacCalc

Speed, Style, Simplicity

MacCalc is faster than Excel:

"Amazingly speedy...[MacCalc] runs faster than Excel."
InfoWorld, November 3, 1986

Blindingly fast.

"Special routines in MacCalc make operations such as entering data and recalculating, opening files, scrolling...faster than Excel."
Macworld, December 1986

MacCalc is easier to use than Excel:

"[Working] in MacCalc is easier than in Excel."
Macworld

"Designed to be easy to use, and succeeds admirably."
MACazine, March 1987

"MacCalc makes such excellent use of the Mac interface that it is a pleasure to use."
MacUser, September 1986

MacCalc produces quality output:

"MacCalc offers [the greatest] flexibility in page and font setup, and has the most printing options."
MacWorld

"MacCalc functioned flawlessly when asked to display or print any combinations of the fonts or style available. As a result, our spreadsheet output could be used directly in reports."
InfoWorld

Your best choice:

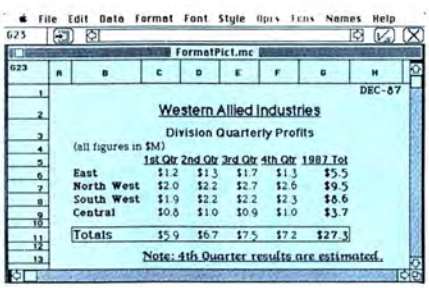
"The result is a clearly superior performer... It is difficult to rate [MacCalc] anything but excellent."
InfoWorld

"MacCalc is the spreadsheet of choice for users who want useful functionality without undue complexity."
MACazine

"The Best Spreadsheet."
MacUser Editor's Choice Award

Special features:

- On-Line Help
- Full Undo command ("fully implemented Undo allows you to recover gracefully from mistakes" — *MACazine)*
- Cell notes, for audit trails and self-documenting worksheets ("Don't underestimate the value of this feature." — *San Jose Mercury News*)
- Reads and writes WKS models (from Lotus 1-2-3 or Excel) and SYLK data
- Variable row height and column width
- Full choice of format, font, size, and style (à la MacWrite) for any cell ("A real boon... adds to that presentation charm." — *San Jose Mercury News*)
- Paste formatted tables from MacCalc directly into MacWrite or PageMaker documents
- Database sort, search, and fill commands ("More powerful than Excel's." — *Macworld*)
- Full desk accessory (DA) support and Switcher-compatibility: MacCalc integrates with your favorite charting or macro programs and DAs



Complete formatting for any cell.

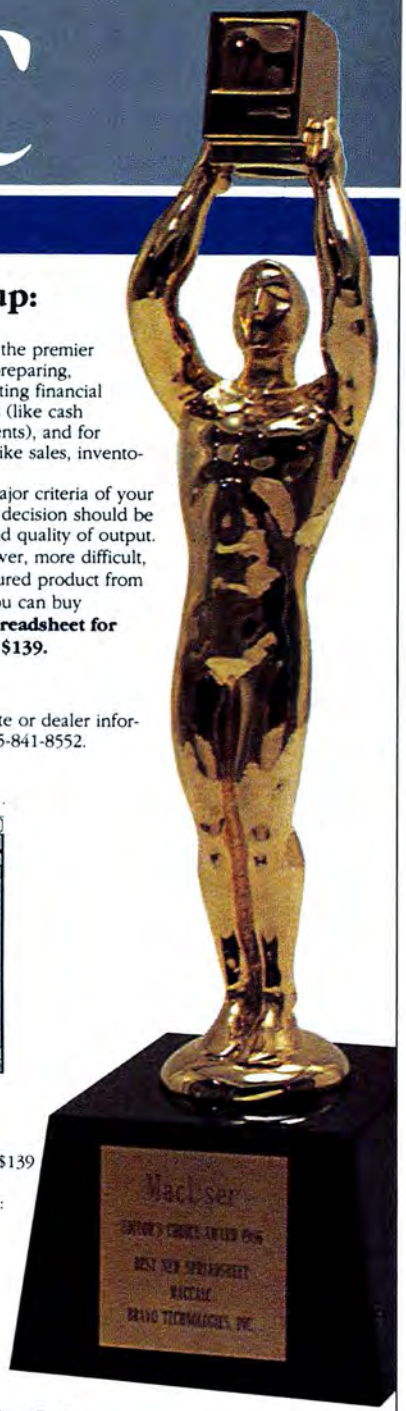
It all adds up:

The spreadsheet is the premier productivity tool for preparing, analyzing, and presenting financial and budgetary reports (like cash flows, income statements), and for keeping simple lists (like sales, inventory, or price lists).

Accordingly, the major criteria of your spreadsheet purchase decision should be speed, ease of use, and quality of output.

You can buy a slower, more difficult, over-priced, over-featured product from the competition, or you can buy **MacCalc, the best spreadsheet for your real needs, for $139.**

For technical, corporate or dealer information, please call 415-841-8552.



To order MacCalc for $139 (plus tax in CA), call 800-345-2888, or write:

BravoTechnologies, Inc.
c/o DPAS
P.O. Box T
Gilroy, CA 95021-2249

BRAVO

Bravo Technologies, Inc.

MacCalc is a registered trademark of Bravo Technologies, Inc. Product names mentioned above may be trademarks of their respective manufacturers.

Your future

Nantucket®

is history.

The business software you've wanted for your Macintosh has been running on the IBM PC for years. It's written in dBASE, but now you can run it on your Macintosh.

With McMax.™

McMax runs dBASE programs up to 10 times faster and gives you an outstanding choice of existing applications. Accounting, order entry and inventory control systems. Time billing, estimating and taxes. Payroll, personnel and mailing lists. Just transfer what you need to your Mac and it's yours.

If you'd rather do it yourself, you'll find that McMax is just what you need. Pull-down menus and an Assist mode help you manage your data with no programming experience. And whenever you want to, you can take control with a rich set of English-like commands that you use interactively or in your own custom programs.

Whatever your mind can conceive, McMax makes it easier to achieve. It's the business database management standard, made better. To learn more, write Nantucket Corporation, 12555 W. Jefferson Blvd., Los Angeles, CA 90066.

Or call (213) 390-7923 today. Because today, McMax means business.

McMax™

means business.

©Nantucket Corporation 1987. McMax is a trademark of Nantucket Corporation; dBase isn't.
In Europe: Nantucket Corporation (Europe), 2 Bluecoats Avenue, Fore Street, Hertford, Herts SG14 1PB Telephone 0992 554621.

Please circle **224** on reader service card.

four different musicians can be feeding information to the program at the same time.

The variations are produced by the program using a statistical process known as a Markov chain. The computer analyzes the musical lines to determine a table of probabilities (called a "transition table") of any given note being followed by another given note. For example, if you feed the program an ascending C-major scale, the computer will consider the probability of an F following an E to be 100 percent, while the probability of an E following an F would be zero. On the other hand, if you play an ascending *and descending* C-major scale, both of those probabilities become 50 percent.

It can get more complicated than that: the program also generates transition tables of order 2—in which the table reads *two* events and determines the probability of an event to follow—and even orders 3 and 4 (the higher the order, the tougher the calculations become, and the closer the variation will adhere to the original); and you can instruct the Players as to how to weight the various tables when they are computing their variations; for example, 30 percent of the time follow the order 1 table, 60 percent, the order 2 table and 10 percent, the order 3 table. Since the program treats pitches and durations as completely separate information, you can set up different weightings for each. You can also edit the data you've entered into a Player, and change or remove individual notes and/or durations, and even put in or delete MIDI program changes.

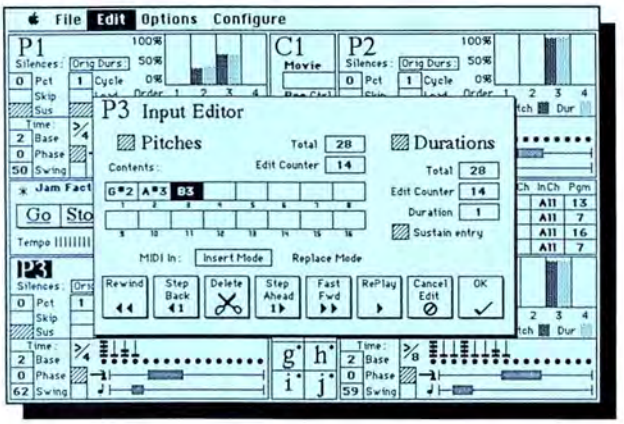
There is a "swing" parameter for each Player, which shortens or lengthens alternate notes. A MIDI keyboard can be used to transpose the music or to perform various control functions, similar to *M*, but in *Jam Factory* these functions can be switched on and off for each Player. In addition, the transposition function can employ a feature called Scale Distortion, which lets you not only specify a key to transpose into, but also a mode. The definition of the mode can be anything you want: diatonic, whole-tone, chromatic clusters or something completely off the wall.

The MIDI output of the running program can be stored as a Movie, which can be saved as a MIDI File, and MIDI File data can be input to the Players as well.

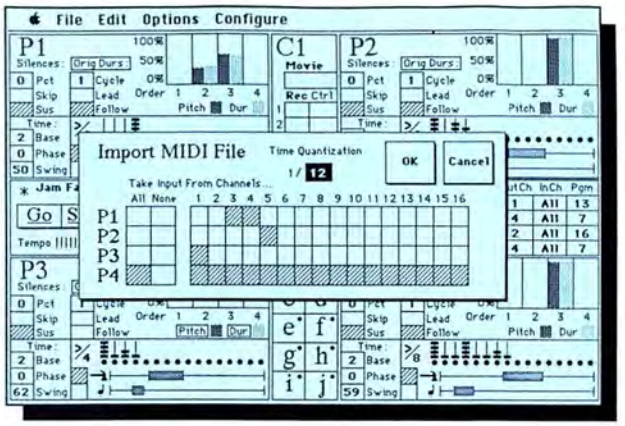
POWERFUL YES, EASY NO

M and *Jam Factory* may be the only Macintosh applications you ever encounter that you ever open for the first time and have absolutely no idea how to proceed, unless you've read the manual. This does not mean the Mac interface has not been adhered to (it has been, and quite well under the circumstances)—it means that there is simply far too much information on the screen and too many options available to absorb immediately.

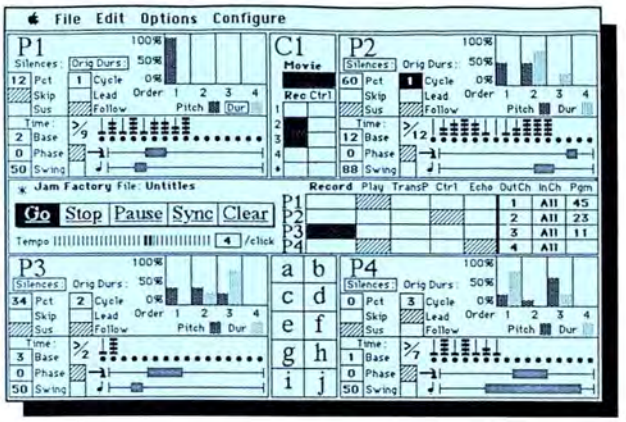
The power of these programs makes itself evident as soon as you start, but along with that power comes a certain, for lack of a better term, responsibility. If you're just interested in having fun, then you



***Jam Factory* showing the pattern-editing window.**



***Jam Factory* with the window for importing and configuring a MIDI File.**



The main screen of *Jam Factory*. If anything, less obvious than *M*'s main screen.

can click and point and play with various sections of either of the programs until you get bored—which depending on your tolerance for pattern-oriented music, may not take very long. On the other hand, if you want to do something serious with one of them, something that you'll want to be able to re-create the same way at another time, you really have to know the programs quite well.

In part, this is because you can't just disable those parts of the program that you don't want to deal with or don't understand—all of them are always running, and they are very often interacting with each other in ways that might not be obvious. For example, *M*'s Cyclic Editors are always doing something to the patterns, whether you've told them to or not. You can turn them off by setting their lengths to 1, but you have to understand the concept behind them fairly well before that solution becomes apparent.

The manuals, which each run about 60 pages, describe all of the functions of the programs, but don't do much more than that, and hence are rather inadequate to the task of explaining what these programs are really about, or even where you should begin. Somewhat more helpful are the demonstration files provided for each program (complete with a set of patches for a Yamaha TX 816—or four DX7s—which you can use if you have Opcode's DX/TX librarian program), but even these give only the barest hints as to the programs' potential.

Both programs are heavily copy-protected, but there is provision for installing them on a hard disk. [*Editor's Note: As usual, this "feature" has cost them each a mouse in the ratings.*] There is a bug in that procedure, however: if you install either program inside an HFS folder, then the next time you try to boot it, you will get a System crash. You must instead install the program directly on the desktop and then, if you like, you can move it into a folder. A few other minor bugs were found, but presumably they will be cleaned up shortly. (The review copy of *M* was numbered rev 0.94, and *Jam Factory* was 0.91). The product was released and readily available in stores throughout the country in these versions. [*Editor's Note: By the time you read this,* M *and* Jam Factory *should both be available in version 1.0, The prices will change, too: to $200 and $150 respectively.]*

Although they are probably the most versatile music-composition programs ever devised for any computer, *M* and *Jam Factory* lend themselves best to creating a specific kind of music: that which uses repeating patterns to create textures, and in which the elements of the patterns are changed, either gradually or suddenly, to create movement and tension. A lot of modern music fits this description: The estimable Wendy Carlos was quoted recently as saying, only partly in jest, that these programs "make me sound like everybody else."

You could write all of Philip Glass' "Einstein On the Beach" pretty easily with either one of these programs, but you could never compose a Chopin prelude, or even a Bach fugue. What many people still consider the primary criteria for calling something a piece of music—a recognizable melody, formal harmony and movement from point A to point B—are actually quite difficult to accomplish with this software.

A more subtle limitation, which makes itself felt only after you've used the programs a while, is their lack of timbral control, so that gradual changes in timbre within a pattern are almost impossible. Synthesizers can respond to MIDI controller information to adjust brightness, vibrato, attack time or other individual elements of the sound, but *M* and *Jam Factory* will not handle these commands; instead, the only way to change timbre is with brute-force MIDI program changes.

The ability to take performances from these programs and use them as raw material in a more conventional sequencer is a big plus, but unfortunately the one sequencer that currently accepts MIDI Files does not have exceptional editing capabilities, which is exactly what is needed to deal meaningfully with the files created by these programs.

How you feel about *M* and *Jam Factory* will probably be closely related to your reaction to the music of composers like Glass and Steve Reich: If you like it, you will love these programs. If, on the other hand, your reaction to it is more along the lines of "mindless drivel," then *M* and *Jam Factory* are probably not for you.

PAUL D. LEHRMAN IS A MUSICIAN, WRITER AND MAC FREAK WHOSE REVIEW OF *MIDIBASIC* APPEARED IN THE AUGUST 87 ISSUE. HE IS NOT ASHAMED TO SAY HE DISLIKES PHILIP GLASS'S MUSIC.

MACUSER RATING

Jam Factory $$$

Follows Mac Interface	■ ■ ■ ■ □
On-Screen Help	None
Printed Documentation	■ ■ ■ □ □
Performance	■ ■ ■ □ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ □ □

Comments: Fascinating and complex program for manipulating MIDI data in real time. **Best Feature:** If you like the kind of music it makes, it can keep you entertained for hours, nay, months. **Worst Feature:** Absolutely impossible to figure out without a thorough reading of the manual and lots of practice. **List Price:** $150. Requires 512K+, MIDI interface and MIDI synthesizer; four synthesizers or one poly-timbral synthesizer recommended. Published by Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. Copy protected.

MACUSER RATING

M $$$

Follows Mac Interface	■ ■ ■ ■ □
On-Screen Help	None
Printed Documentation	■ ■ ■ □ □
Performance	■ ■ ■ □ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ □ □

Comments: Fascinating and complex program for creating music and manipulating MIDI data. **Best Feature:** If you like the kind of music it makes, it can keep you entertained for hours, nay, months. **Worst Feature:** Absolutely impossible to figure out without a thorough reading of the manual and lots of practice. **List Price:** $150. Requires 512K+, MIDI interface and MIDI synthesizer; four synthesizers or one poly-timbral synthesizer recommended. Published by Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. Copy protected.

Coming of Age

JustText matures into a strong typesetting program with a little help from its friends.

BY GREGORY WASSON

THE FIRST (AND LAST) *MACUSER* review of *JustText* appeared in the December 1985 issue—soon after *JustText* first saw the light of day. Since then *JustText* has matured and changed considerably. (If you've just tuned in, *JustText* is a program much like professional typesetting software, with the added benefit of supporting PostScript—a page description language that works equally well on a LaserWriter and a high-quality Linotronic.) *JustText* is now a very sophisticated tool for desktop publishers who want to exploit the power of PostScript.

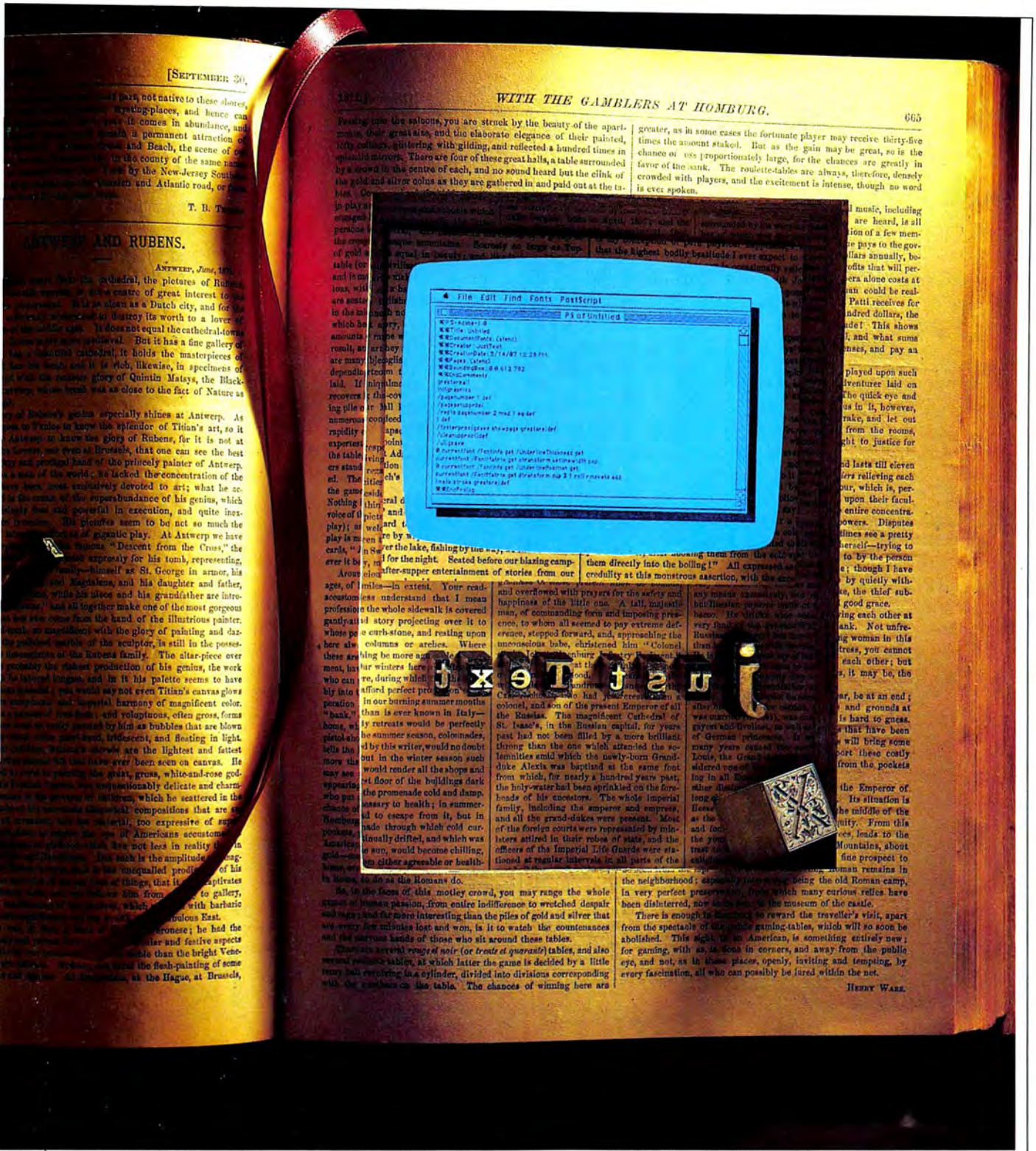
POSTSCRIPT STRATEGY

PostScript is hot, especially since Adobe and IBM cozied up. Several Macintosh programs are now creating or allowing users to import Encapsulated PostScript (EPS) files, including *Word* 3.0 and *PageMaker* 2.0. (EPS combines the power of PostScript code with an on-screen image of what the code will produce on paper.) On the surface, it seems that *JustText* comes out a poor man's caviar when compared to *Word* and *PageMaker*. Doug Clapp, in the March 1987 issue of *MacUser*, commenting on *Word* 3.0's ability to include embedded PostScript, boldly stated: "So much for *JustText*." It isn't quite so simple.

JUST ABOUT THERE

JustText, though far from perfect, has adopted a unique approach to the interface between the Macintosh and PostScript. Initially, the user types in text and marks it up with typesetting codes (for example, {f4} specifies that the type be Times Roman; {p12} creates 12-point type). This document is converted by *JustText* into PostScript then you download it to the printer. The PostScript version can be viewed and saved as a separate file. More importantly, *JustText* generates "pure" PostScript. This is in sharp contrast to the approach of other programs that rely on interpretive files such as *Laser Prep* or *PageMaker*'s *Aldus Prep* which establish elaborate private routines that convert the Mac's QuickDraw routines into PostScript. These routines are themselves in PostScript, but they so distort and redefine the PostScript environment that the coded versions of your original files become nearly impossible to read. If you have ever used Command F to create a PostScript file of your *PageMaker* or *MacWrite* document, you have seen examples of this. *JustText*, on the other hand, translates text marked up with typesetting codes into a PostScript program that conforms exactly to Adobe's file structuring conventions. With some knowledge of PostScript

GARY BUSS



it can easily be understood and changed.

And *JustText* is increasingly structured with features to facilitate such tampering and PostScript "hacking" in general. Packaged with the program are several *LaserTools* that convert graphics created by *MacPaint*, ThunderScan and others into PostScript. Although *JustText*'s non-WYSIWYG environment might intimidate some, the door that *JustText* opens to PostScript more than compensates for it. Two features, in particular, stand out. One of them, the {ps} command, existed in the earliest version of *JustText*, but was barely documented. The second, the addition of a PostScript menu with its ability to use customized PostScript prologs for any *JustText* file, is relatively new. The most recent manual (dated June 12, 1986) stresses both features in a valuable

Program 1

```
{ps} 0.5 setgrayQQ
{f7}{p58}MacUser{ql}
```

Gray text can be substituted for black using this program.

Figure 1: You can set the gray scale of your type with only a few simple commands.

added section on PostScript. Here's how to use the power of these features.

{PS} I LOVE YOU

Incorporating PostScript passthroughs, that is, placing bits of PostScript into a *JustText* document, is a relatively easy task. The {ps} command tells the program that what follows is already in PostScript and not to be interpreted. A simple example, suggested in the manual, prints text in gray rather than black. To do it, choose NEW from the File menu and type in Program 1.

The first line tells *JustText* not to interpret what follows when it sends the job to the LaserWriter (or any other PostScript printer). Setgray is a PostScript operator that sets the gray scale—in this case to 0.5, which is a level halfway between 0 (black) and 1 (white). The QQ indicates that this is the end of the PostScript passthrough and that anything that follows should be interpreted by *JustText* into PostScript. Line two is *JustText*-coded text that prints the word "MacUser" 58-point {p58} Times Bold Italic {f7}. (See Figure 1.) Simple, but not much fun.

LOGOING ON

Let's say you want to create a masthead/logo for your newsletter. This example illustrates the rotation of text and the creation of outline type—a very useful technique since the usual Macintosh special-effect styles (such as outline and shadow) are not directly accessible in *JustText*. Figure 2 shows the final output.

If you are still in *JustText*, close your file and choose NEW again from the File menu. Type in Program 2. Line 1 is the first PostScript passthrough. It tells the printer to move to the coordinates 72 500 on the page and to translate them to the origin (0 0). gsave saves this page set-up or orientation through the rest of the job. 90 rotate rotates the page 90 degrees clockwise. The QQ ends the passthrough. Line 2 is *JustText* coding that establishes the column width and depth. In this case the column is 17 points high and 39 points wide. The {cj1} causes a jump into the column just defined. Without it, the default column, which covers most of the page, remains in effect. Line 3 tells *JustText* to set the text (THE) in 27-point Avant Garde Demi. The command {fj} forces the justification of the text string across the column. Line 4 begins the second PostScript passthrough. grestore restores the page set-up as saved by the gsave in the first line (that is, it cancels the rotation). The font is then selected and set to 54-point. Although we set Avant Garde Demi as the font in line 3 with {f21}, this setting does not carry over into the passthrough. Without this second explicit font setting, our text would come out in Times Roman. Line 5 moves us to 0 0, takes the text string ELNA, creates outlines of the letters (true charpath) and then draws the outlines in black (stroke). Line 6 moves back to 0 0, then moves 138 points (the approximate length of the text string ELNA) to the right along the X axis. The text string NEWSLETTER is printed at this point.

The greatest advantage of mixing *JustText* and PostScript in this example appears in lines 2 and 3. First, it's easier to type in {f21} (or select it with the mouse via the Font menu) and {p27} than to type in /Avant-Garde-Demi findfont 27 scalefont setfont. Second, and more important, *JustText* calculates the letter spacing required to justify the text string THE within a defined space. You don't have to figure out that the PostScript should read: –1.580 0 (THE) ashow. *JustText* is great for those of us who aren't all that hot at math. As the manual says, most users quickly discover that *JustText* can write better PostScript than they can—and do it faster.

This last point reveals a very useful aspect of *JustText:* its role in the development of PostScript programs and as a way to learn PostScript. If you just can't figure out how to write the PostScript for some text manipulation, chances are that *JustText* will be able to write it for you. Do you need to know the kerning value to tighten up the "W" and the "a" in a text string that appears in your PostScript program? There is a way to see the PostScript generated by *JustText*. With this ability you can learn the complex ins and outs of programming such manipulations. And if you're not interested, *JustText* will do the hard stuff for you.

THE ELNA NEWSLETTER

Figure 2: Special effects, such as outline and rotation of text, help in the creation of logos and mastheads.

Program 2

```
{ps} 72 500 translate gsave 90 rotateQQ
{c1,17,0,0,39}{cj1}
{f21}{p27}THE{fj}
{ps} grestore AvantGarde-Demi findfont 54 scalefont setfont
0 0 moveto (ELNA) true charpath stroke
0 0 moveto 138 rmoveto (NEWSLETTER) showQQ
```

This example shows how text can be rotated.

Clearly, the Full Page Display You'll Want to Look Into.

Nutmeg Systems—Clearer. Sharper. Dependable. Affordable.

When it comes to buying a Full Page Display for your Macintosh™ computer, the choice is clear—here's why.

Clearer. Compare our Nutmeg/Xerox* Full Page Display (FPD) to other big screens. Our images are darker, sharper, and easier to read—edge to edge and top to bottom!

Sharper. Our pixel density (90 dpi), combined with a special paper white phosphor screen, make the Nutmeg/Xerox FPD markedly sharper and easier to look at than other big screens. Other screens are 72-80 dpi and all use a harsher phosphor.

Dependable. Developed by Xerox, backed by extensive research and development, and supported by Xerox Service Centers nationwide, the Xerox FPD monitor joins a long line of respected products. Ergonomically designed, the Xerox FPD tilts and swivels to any position, facilitating maximum user comfort. Combined with the Nutmeg interface board, the Nutmeg/Xerox FPD becomes the clearly superior display.

Affordable. Clearer. Sharper. Dependable. And the final reason to choose the Nutmeg/Xerox FPD? It's the most affordable!

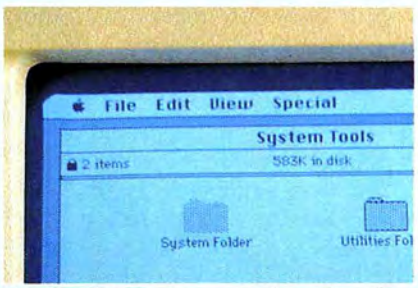


Image deteriorates near the edge of another company's FPD screen.

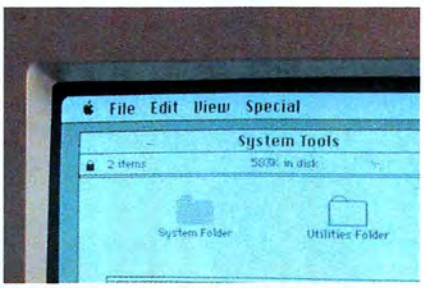


Image remains sharp, edge to edge on the Nutmeg/Xerox FPD.

Nutmeg Systems

Nutmeg Systems, Inc.
25 South Avenue
New Canaan, CT 06840
203-966-3226

Visit your authorized Apple dealer and compare. You'll see why the Nutmeg/Xerox FPD is the CLEAR CHOICE.

*Xerox is a trademark of Xerox Corporation. Macintosh is a trademark licensed to Apple Computer.

Please circle 287 on reader service card.

Coming of Age

THE JUSTTEXT PROLOG

As useful as the {ps} command is, the ability to write and set "prologs" (a series of procedures downloaded to the printer at the start of the *JustText*-generated PostScript file) opens the door even wider. These prologs handle various aspects of page composition, such as rotation, underlining, page numbers—any procedure you want that will affect every page.

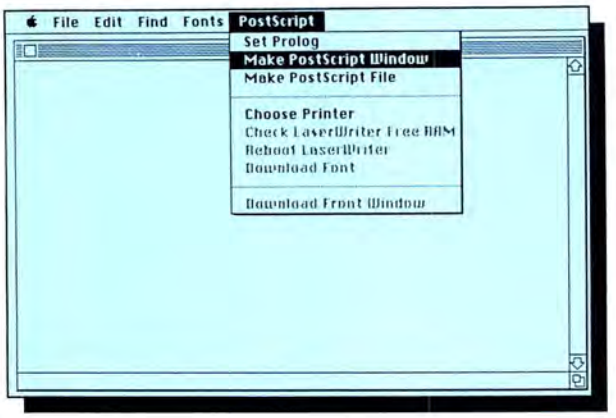


Figure 3: To access PostScript's default prolog, you must close a current job, select NEW then select MAKE POSTSCRIPT WINDOW from the PostScript menu.

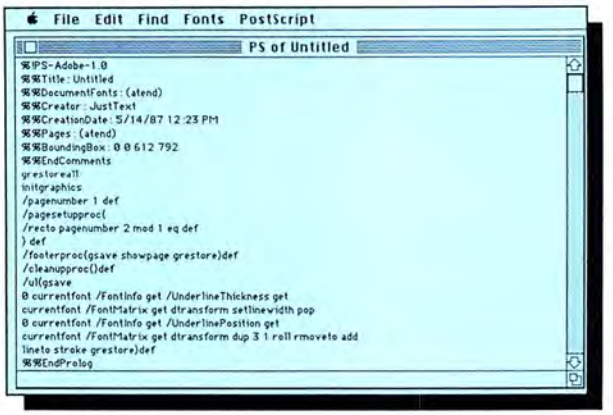


Figure 4: This Default Prolog for a standard 8½ by 11 inch page, portrait orientation, can be used as a starting point in customizing typesetting jobs.

Program 3

```
%!PS-Adobe-1.0
grestoreall
initgraphics
/pagenumber 1 def
/pagesetupproc{
/recto pagenumber 2 mod 1 eq def
} def
/footerproc{gsave showpage grestore}def
/cleanupproc{}def
/ul{gsave
0 currentfont /FontInfo get /UnderlineThickness get
currentfont /FontMatrix get dtransform setlinewidth pop
0 currentfont /FontInfo get /UnderlinePosition get
currentfont /FontMatrix get dtransform dup 3 1 roll rmoveto add
lineto stroke grestore}def
```

This is the Default Prolog for a standard 8 ½ by 11 inch page in portrait orientation.

If you are in *JustText* close the current job and select NEW. An empty window appears. Access to the prologs is gained through the PostScript menu. Figure 3 shows this menu pulled down atop the empty window. Select the menu item called MAKE POSTSCRIPT WINDOW. A dialog box will appear. Click OK. After a few seconds you'll see a new window with a prolog at the top (see Figure 4). This is the Default Prolog for a standard 8½ by 11 inch page, portrait orientation. Unless it is replaced or modified as described later, it will be sent to the printer when you download your *JustText* file. The lines beginning with %% are comments and don't concern us here. You can delete them if you want. What remains is seen in Program 3.

%! signals the printer that it is receiving a valid PostScript program. All PostScript files must begin with this convention. grestoreall repeatedly "pops" the graphics state until it reaches the bottommost one. It has the effect of "cleansing" or "purging" the graphics state of any rubbish left by a program that downloaded the QuickDraw-to-PostScript conversion routines that are stored in the *Laser Prep* file. initgraphics restores all of the default values of the current graphic state. The combination of these two operators prevents "mirror writing." But to free the memory taken up by any previously downloaded prep files (which can amount to 70K of the 171K available to the LaserWriter at startup) you must reset the LaserWriter by turning it off and on or by resetting it with the appropriate command from *JustText*'s PostScript menu.

/pagenumber 1 def indicates the page number of the following PostScript section of your document. It can be reset within *JustText* with the {pn} command, if, for instance, your document began on page 8. The default is 1.

The next section, /pagesetupproc, generally establishes nonprinting values for each page such as scale or orientation. It is generated at the beginning of every page. In the above Default Prolog it is defined as

General Ledger

Accounts Receivable

Accounts Payable

Inventory Management

Order Entry

Financial Analysis

and more . . .

Complete!

$299.95

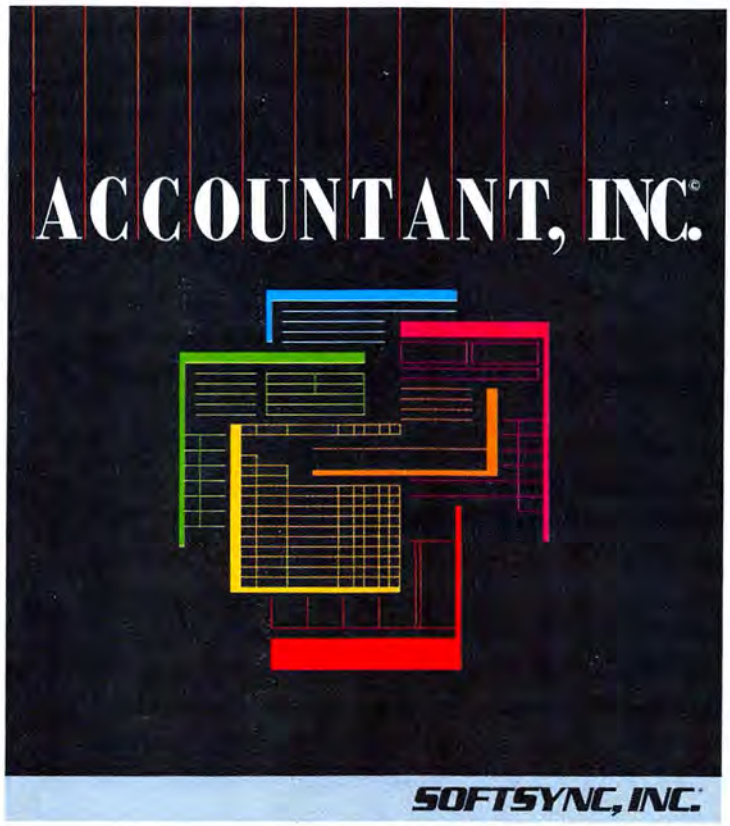
ACCOUNTANT, INC. is powerful business software.

Check the features. Now check the price.

$299.95 makes ACCOUNTANT, INC. the affordable solution. And everything's included—features that can cost thousands more with other professional business software.

Designed for non-accountants, ACCOUNTANT, INC. is often used without documentation. Nevertheless, we include over 500 pages of explanation, training, even a course in accounting. Plus we have excellent telephone support.

It's complete. Invoicing, purchase orders, statements, checks and everything else your accounting system needs is in the box, ready to use.



NEED SMART INVENTORY MANAGEMENT?

ACCOUNTANT, INC. is fully integrated, and gives you quick and easy financial analysis. Monitor your cash flow. Get receivable agings, income statements, financial ratios . . . and more. You can also export data to spreadsheets.

Best of all, the Integrated Inventory Management System adds and subtracts items as you receive and ship them.

How do you make the right business software decision? Tear out the ad. Take it with you, and compare us to our expensive competition. The more you check, the better we look.

Please call or write for more information.

162 Madison Avenue,
New York, NY 10016
(212) 685-2080.

Comma Comment

Hint: There is a common error I've noticed with the {ps} command when shuttling back and forth between *JustText* and PostScript. Remember that while *JustText* does place a comma between page coordinates (such as 0,0), PostScript does not! If you write 72,0 moveto in the passthrough you'll receive an error message.

/recto pagenumber 2 mod 1 eq def. This line is simply defining a recto page as having an odd page number. If the current page has an even page number then it is not a recto. This weighty issue is determined by dividing the page number (which is automatically supplied to the pagesetupproc by *JustText*) by 2; if the remainder is 1, the page is a recto. That's all the line—and therefore the pagesetupproc—is doing in the Default Prolog. You could delete the line without harm. But if you ever need to let the printer's PostScript interpreter know that you're dealing with a recto (for instance, you want page numbers to be printed on the lower right of recto pages), leave it in.

The next procedure, the footerproc, is defined as gsave showpage grestore. *JustText* automatically places footerproc at the end of every page. You don't have to worry about it. As defined here, it saves the current graphics state (gsave), it tells the printer to print the page (showpage), and then restores the saved graphics state (grestore). Its main function in the Default Prolog is to print the page. Its ultimate purpose, though, is to set up the constant printing elements of each page, such as crop marks or page numbers.

/cleanupproc does nothing in the Default Prolog (it's undefined {}), but can be put to good use, as we'll see later. Unlike the footerproc, it is generated only at the end of the document.

The procedure /ul determines the proper line thickness and position of underlining with respect to the current font and point size, so that any time you use the *JustText* codes {su} and {ux}, the resulting underlines will be the most appropriate.

CUSTOMIZING A PROLOG

This is all great fun, you say, but what good is it?

Fortunately, *JustText* includes a way to modify the Default Prolog, and in fact the program comes with several customized prologs already saved for you on disk. There is also, in fact, a default prolog for pages in landscape orientation. But a serious programming error renders it useless. Examining the problem and fixing it will introduce you to the basics of writing your own prologs.

If you have ever tried to print in landscape mode with *JustText* by using the Page Set Up menu item in the File menu, you'll understand the problem. Although the first page may come out fine, subsequent pages come out with the text continuing to rotate. The final output, if you were to pile the pages on top of one another, would resemble a crazy spiral galaxy of letters. To fix this, first open a new document and select LANDSCAPE or WIDE in the Page Set Up dialog box. Pull down the PostScript menu and select MAKE POSTSCRIPT WINDOW. A new window with the landscape prolog will soon appear. The important parts to notice for the purposes of printing in landscape orientation are the pageset-upproc and the footerproc. Buggy sections of the default landscape prolog are shown in Program 4.

The pagesetupproc first defines a recto as already described. It then tells the PostScript interpreter in the printer to go to the bottom right corner of a standard letter-size page and make that point the origin (0 0) of the coordinate system. The page is then rotated 90 degrees clockwise, thereby placing it in landscape orientation with the origin of the coordinate grid back in the lower left corner of the page. But look what happens at the end of the page when footerproc is called up. The procedure performs a gsave (that is, it preserves the current graphics state which, remember, contains a 90 degree rotation). The page is printed (showpage), and the graphics state preserved by gsave is returned by the grestore. The pagesetupproc is called up again for the next page and performs another 90 degree rotation, but it is 90 degrees from the last rotation that was saved by gsave in the footerproc. The end result is that our page has now rotated 180 degrees! And the point of origin is being constantly recalculated each time pagesetupproc does the line 612 0 translate. And round and round we would go, except that there is a simple fix. In the pagesetupproc insert a gsave just before the line 612 0 translate. Now go down a few lines to the footerproc and delete its gsave. I'll let you reason it out, but it does work.

Program 4

```
/pagesetupproc{
/recto pagenumber 2 mod 1 eq def
612 0 translate
90 rotate
} def
/footerproc {gsave showpage grestore}def
```

The default landscape prolog has some bugs.

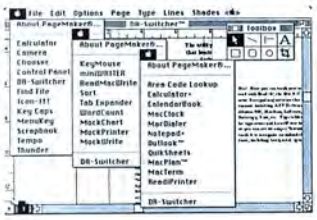
THUMBNAIL SKETCHES

One of the neatest "canned" or customized prologs supplied on the *JustText* disk (at least if you bought version 1.0i) is called the Thumbnail Prolog 4. It prints four document pages as "thumbnail sketches" on each page, with facing pages opposite each other. It shows just how powerful the Prolog feature can be with only a little fiddling in the pagesetupproc and cleanupproc. See Program 5 for the code and Figure 5 for the output.

Without going into complete detail, the Thumbnail Prolog works like this: When the pagesetupproc encounters a discreet page in your document (remember that *JustText* always supplies this procedure with the current page number), it assigns it a relative page number (/relativepn pagenumber 4 mod def). If the current page is 4 or a multiple of 4, then the relative page number would be 0, and the third line of the prolog proper will perform a showpage. If

CHANGING THE RULES OF SOFTWARE EVOLUTION

The utility that beats desk accessory crowds



Now multiple sets of desk accessories can be perfectly organized and readily available. DA-Switcher does away with the limit on the number of DAs that can be used by letting you "switch" the desk accessories in the Apple menu. DA-Switcher provides nearly instant access to all the desk accessories you could ever use!
On-line help is always available, DA-Switcher is not copy-protected and runs on any Mac from 512e to Mac II.

Only $39.95*

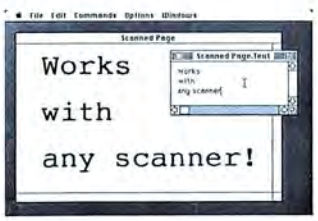
Teach your scanner how to read!

Now you can teach your scanner how to read with **Read-It!**, the first O.C.R (Optical Character Recognition) software that works with any scanner including: AST Turboscan, Microtek, HP ScanJet, Abaton, MacScan, LoDown, Spectrum, Datacopy, Dest, etc. Type tables for most popular typewriter and LaserWriter fonts are included, or you can use its unique "learning mode" to teach it to recognize an unlimited number of fonts, including foreign and special characters!

Only $295.00

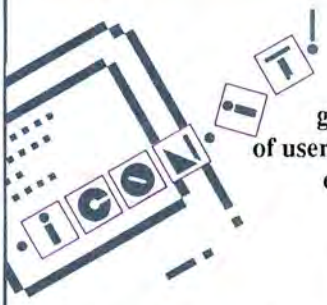
Read-It! TS, a special version optimized for Thunderscan is also available. With all the features of its "big brother", Read-It! TS offers the benefits of O.C.R. to the popular Thunderscan digitizer. Reads Thunderscan files directly, converting them into a text file you can readily use with your word processing, database or desktop publishing application.

Only $149.00



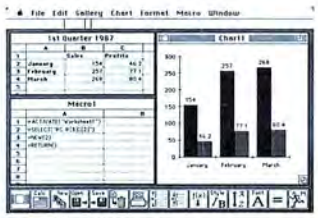
A new generation of user interface enhancers

Only $59.95*



Now you can add life to all your favorite applications. Icon-It! lets you assign familiar pictures to represent menu items, desk accessories, Fkeys, and even Excel or Tempo macros!
No more wasting time with menus or remembering keyboard commands.

Your work becomes easier, more productive, even more fun! Templates for the most popular programs are included, or you can easily create your own icons with the built-in editor.
On-line help is always available, Icon-It! is not copy-protected and runs on any Mac from 512Ke to Mac II.



Icon-It! and Excel.

POST ART

The first clip-art collection that is truly a work of art

3-disk set of high quality MacDraw, Cricket Draw & Adobe Illustrator clip-art by award-winning artist J. Ciccone.

Only $49.95*

Keep them alive in an ever changing world!

Maze Survival™
Featuring **Fritzzound** digitized sound effects.

Runs on all Macs!

Only $34.95*

To order call toll-free
1-800-628-2828 Ext.751
Visa, MasterCard and C.O.D.

For information or dealer orders please call
(305) 665-4665

OLDUVAI SOFTWARE

Or send check or money order including $3 shipping and handling per item ($5 for foreign orders). Florida residents add 5% sales tax.

*Introductory offer expires October 31, 1987

Please circle 118 on reader service card.

Olduvai Software, Inc. • (305) 665-4665
6900 Mentone • Coral Gables • FL 33146

Products mentioned are trademarks of their respective owners.

the page number is less than 4 or not a multiple of 4, then the Prolog scales the pages by half (0.5 0.5 scale), determines new coordinates for each thumbnail page, strokes a box about each reduced page and eventually prints four up when a multiple of 4 is reached. Should your document be only three pages long, it still prints, because cleanupproc has been defined to execute a showpage when it appears at the end of the document.

ICONOGRAPHY

Many people are experimenting with the design of prologs. Computer Literacy Press, a small computer publishing house in Berkeley, CA, does outstanding work with *JustText*. Arthur Luehrmann, a co-owner of the business, created the following prolog, which allows the placing of marginal icons next to paragraphs in a document (see Program 6 for the code and Figure 6 for an example). This Icon Prolog is particularly interesting, because it does not actually modify any of the standard procedures in the Default Prolog.

The prolog begins by defining a variable showicon as false. The variable icon redefines showicon as true when called from within *JustText* in a PostScript passthrough ({ps} iconQQ). A procedure called /mto is created. It is simply the usual PostScript system moveto command. The moveto command, on the other hand, has been redefined as a procedure: first to perform a moveto and then to draw an icon (the drawicon procedure defined at the end of the prolog).

How does it work? It's quite simple. *JustText* always executes a moveto command when advancing to a new paragraph. But we have redefined moveto to do a moveto and to check to see if the icon passthrough has been made. If it has, then the prolog moves to the beginning of the paragraph and performs the procedure drawicon which draws an icon (in this case a shadowed check mark) in the left margin. The details of drawicon are unimportant; any specially designed graphic of your choice could be substituted. It is important, however, to retain the gsave...grestore couplet in order to return to your place at the beginning of the paragraph. And the line /showicon false def at the end of drawicon must also remain or you'll end up with more icons than a Greek Orthodox church.

MAKING IT WORK

Creating prologs or having some canned ones available doesn't mean they execute automatically. But how do you use them? In the PostScript menu there is an option called Set Prolog. When you have a prolog finished and saved to disk or are ready to use one provided for you, choose this option. A dialog box appears asking you to open a file, choose the prolog you want to use and click OPEN. From that moment on, until you quit *JustText*, the selected prolog will be inserted at the

Program 5

```
%% Thumbnail prolog
%% Written by Bill Bates


/pagesetupproc{
/relativepn pagenumber 4 mod def
relativepn 0 eq {showpage}if
/column relativepn 2 mod def
/row relativepn 2 idiv def
grestoreall
initgraphics
0.5 0.5 scale
612 column mul 792 792 row mul sub translate
gsave 0.1 setlinewidth 0 0 moveto 612 0 lineto
612 792 lineto 0 792 lineto closepath stroke grestore
}def


/footerproc{}def


/cleanupproc{showpage}def
```

This little program, called Thumbnail Prolog 4, comes with *JustText*. It prints four document pages as small sketches on each page.

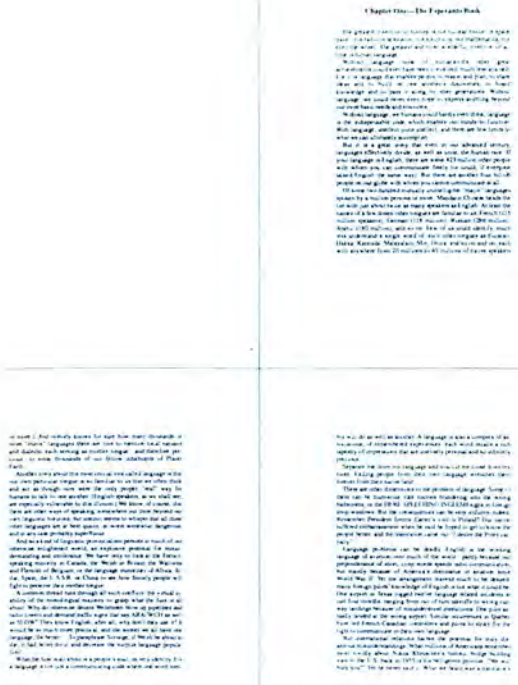


Figure 5: Four document pages can be reduced and printed on one page as thumbnail sketches.

Introducing Design. The first thinking tool for both sides of your brain.

Now there's a powerful graphics and text handling program to help you visualize complex systems.

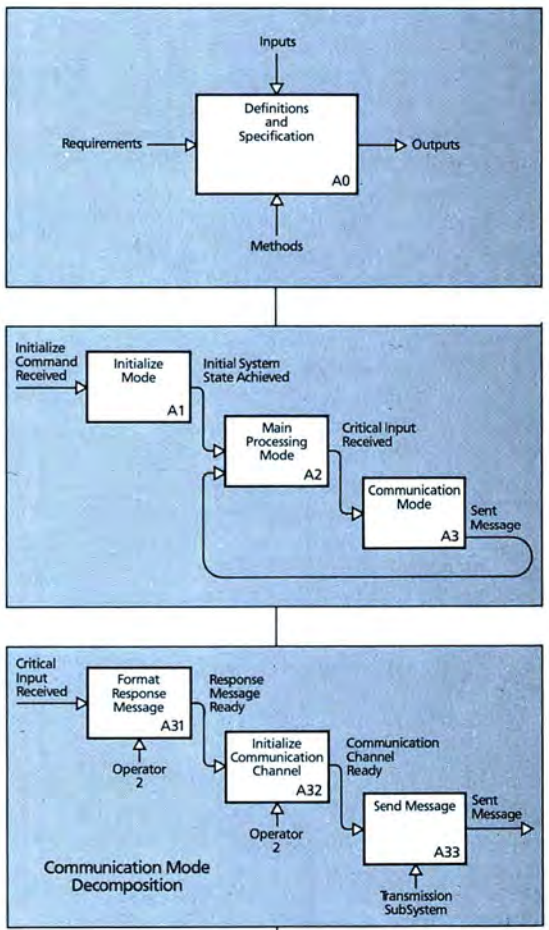
Design lets you create understandable graphic representations of projects and processes on your Macintosh.™ So you can organize quickly, analyze effectively, and communicate clearly.

Draw flow charts, organizational charts, computer programs, communication networks, presentation graphics and production line processes—in record time. Once you connect one object to another in a diagram, it stays connected, no matter where you move it. *Design* makes it easier to establish, maintain and understand logical relationships.

Build *Design* diagrams up to 999 pages. And arrange them in hierarchical structure. You can also develop successively detailed descriptions within one multi-level diagram. Or hide detail, so the big picture is easier to see. Even edit, manipulate and stylize text inside any graphic object. And create "hypertext" links to organize text across multiple pages.

What's more, you can always upgrade to *Design* development systems from Meta Software. *Design + DA* lets you write Macintosh™ Desk Accessories, mini-applications that extend the power and capabilities of *Design*. And *Design Open Architecture* is a programmable system for developing final applications.

That's the verbal description of what *Design* can do. For a more graphic illustration, look to your right.



Why just draw graphics, when you can draw conclusions?
For more information about *Design*, or for the name of the dealer nearest you, mail this coupon to Meta Software Corporation, 150 CambridgePark Drive, Cambridge, Mass., 02140. If you can't afford to wait, call us at 800-227-4106. In Massachusetts, call 617-576-6920.

Name_____
Title_____
Company_____
Address_____
City_____ State____ Zip_____

Design is available for the Apple® Macintosh™ 512, 512E, Plus, SE and II at $250.

Meta Software
150 CambridgePark Drive
Cambridge, MA 02140
617-576-6920

Apple is a registered trademark and Macintosh is a trademark owned by, or licensed to, Apple Computer Inc. © 1987 Meta Software Corp.

Please circle 268 on reader service card.

top of your file (or you can cancel the selected prolog by choosing SET PROLOG and clicking on CANCEL). To check this out, Make a PostScript window. Don't panic if you don't see your customized prolog. *JustText* always generates the Default Prolog. You'll need to scroll down a few lines to spot yours.

AND NOW THE BAD NEWS

Although this isn't a review, there are several developments *JustText* users might be interested in. The current version is 1.0i. Version 1.1 has been prematurely announced by various Mac magazines since 1985! There is no such creature now. Whenever it finally appears, it will not run on an unenhanced 512K. The most probable new big feature will be the ability to use any downloadable font. Page preview might be in the works. Some minor changes will have to be made on prologs written for version 1.0i.

In the meantime, version 1.0i is all there is. The list cost is $195. Make very sure you have the manual dated June 12, 1986. It is vastly superior to the original manual and contains invaluable character code charts for the Symbol font, Zapf Dingbats and all of the characters available in any LaserWriter typeface. The various PostScript-related features are also better documented.

The original review in *MacUser* granted *JustText* a 4-mouse rating for support. Knowledge Engineering, unfortunately, hasn't always lived up to this standard. No early *JustText* owner that I know has ever received a notice of upgrades or of the newer manual. That's a shame, because the program itself has evolved during the last 2 years into an excellent product. I learned of the new manual and version 1.0i only months after their release by spotting them in a computer store. I suspect that I am not alone in this experience. To be charitable, Knowledge Engineering is virtually a two-person company. I once worked in a small office and know the hassles involved. But the support problem does mar an otherwise valuable tool.

So much for *JustText*? I don't think so. *JustText*'s sane approach to PostScript makes it faster, more precise and more versatile than products like *Word* or *PageMaker*. *JustText* might be thought of as a textual equivalent to *Cricket Draw*. The latter provides a PostScript window that enables you to follow and study the PostScript of your graphics. *JustText* does the same for text—a dimension lacking in *Word*. People looking for a unique alternative in the expanding field of desktop publishing software and those desiring to learn PostScript or improve their programming skills will find this software a welcome helpmate.

GREGORY WASSON IS A FREELANCE DESKTOP TYPESETTER WHO LIVES ON A MOUNTAINTOP IN THE MIDDLE OF A REDWOOD FOREST NEAR SANTA CRUZ, CA. HE'S A FORMER GRADUATE STUDENT IN GREEK AND LATIN.

Program 6

```
%!
%%Title: ICON PROLOG
%%Creator: Arthur Luehrmann
%%CreationDate : May 3, 1987

/showicon false def
/icon { /showicon true def } def

/moveto{
 mto
 showicon {drawicon} if
}def

/mto{
 systemdict begin
  moveto
 end
}def

/drawicon{
 gsave
  currentpoint translate
  -84 -75 translate
  3 51 19 31 66 77 66 57 19 0 5 0 31 path fill
  11 59 27 39 74 85 74 65 27 8 5 8 39 path
  gsave
   .8 setgray fill
  grestore
  2 setlinewidth stroke
 grestore
 /showicon false def
}def
/path{mto{lineto}repeat closepath}def
```

This prolog, written by Arthur Luehrmann of Berkeley's Computer Literacy Press, allows the printing of marginal icons next to paragraphs in a document.

This is an example of using a specially created PostScript prolog to make certain things easy to do in JustText. In our recent computer books, we use many marginal icons to call the reader's attention to the task at hand: doing something on the computer, reading, answering questions, etc. We wanted a simple way to call for an icon within the JustText file without having to enter all the drawing instructions each time.

The solution? Put the drawing instructions in a PostScript procedure in the prolog. Then call the procedure when needed. Here is a sample of its use: A simple check-mark icon will appear just left of the beginning of the next paragraph.

The PostScript instruction `icon` (inserted into the JustText file as `(ps)iconQQ`) did the trick. Here's how it works: The call to `icon` merely sets the boolean value of `/showicon` to be `true`. (It's normally `false`.) No icon is drawn at this point. But look at the `moveto` procedure in the prolog. It first calls `mto` and then tests the value of `/showicon`; if the value is `true`, then `drawicon` is called and the icon appears. (After drawing the icon, the procedure resets `/showicon` to `false`.)

In seeing how this all works, you need to know two important facts. First, JustText *always* issues a `moveto` command just before starting a new paragraph; the result is to move the current point to the left margin at the baseline of the first line of the new paragraph. Second, the `moveto` procedure defined in the prolog takes the place of the system `moveto`. The new procedure, in effect, captures any call to `moveto` coming from JustText (or anywhere else!).

Normally, you want the system `moveto` to be carried out. That's the purpose of the `mto` procdure defined in the prolog. It reestablishes the context of the system commands, then calls `moveto`, and finally restores the previous context.

The details of the icon are unimportant. You could substitute different drawing instructions and create whatever icon you want. You might have to translate the origin differently and possibly change the scale—especially if the PostScript for the icon comes from a drawing program, such as Cricket Draw. And you must definitely change all `moveto`'s to `mto`'s. But that should be all.

Figure 6: An icon, in this case a checkmark, can be placed in the margin of a document to accentuate the text.

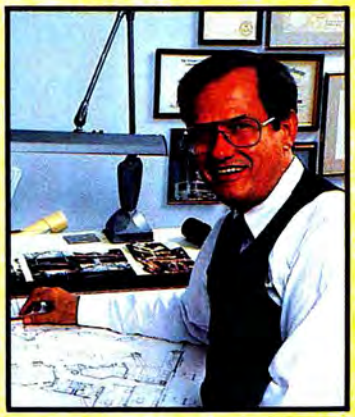
TWO RULES FOR BUYING SOFTWARE:

1. **Try it Out Under Your Conditions, On Your Machine, With Your Data**
2. **Always Follow Rule No. 1**

Which One(s) Fit(s)?

We can help you buy the right software every time. Whether you're trying to decide on page layout, spreadsheet, accounting, database, or any other category, you're offered lots of choices. And, there are significant differences in the programs available. You can read the reviews, talk to friends or people in the stores. But, nothing beats hands-on testing.

"Don't Get Stuck"



"When I look at my software shelf, I see some dogs sitting there, just gathering dust...wasted time, and wasted money."
"This trial purchase plan helps eliminate mistakes in software purchases."
"We pay for the trial, and get full working originals, with manuals. We run them up one side and down the other."
"Once we decide on a program, all that's left is to pay the discounted balance to purchase."
"The others, we send back."
"We buy the right program, and only the right program."
"And, we get it *way* under retail."

Choose *Your* Weapons

Call right now, and select from 600 titles, including graphics, word processing, accounting, spreadsheet...even games!

Once you try us, you'll never be tempted to break the rules again.

Software That Fits™

Call For Our Free Catalog!

1-800-972-3018

(713) 540-2300

Please circle 152 on reader service card.

Save on Sony Disks!

SS (2 boxes)	$1.05	SS (100 bulk)	$ .92
DS (2 boxes)	$1.50	DS (100 bulk)	$1.22

FREE Sony Videotape
minimum 5 boxes, or 100 bulk
Hurry, quantities are limited

MacRENTALS™ P.O. Box 4028 • Humble, TX 77347

HIGH PERFORMANCE

EXTERNAL MODEM

EMAC-MD2400

- Built-in speakerphone
- CCITT V.22bis (2400 bps)
- Bell 212A (0-300, 1200 bps)
- Full Hayes® compatibility
- Automatic data-to-voice switching (Lift telephone set)
- Diagnostics included in firmware

HARD DRIVES

EMAC-20D, EMAC-40D, EMAC-91D

- 20MB,40MB, or 91MB capacity
- SCSI intelligent interface
- Fast data transfer 1MB/sec.
- 18ms average seek time for 91D
- Built-in power supply
- 50-pin shielded cable and terminator included

18ms AVERAGE SEEK TIME FOR EMAC-91D

HARD DISK/TAPE BACKUP UNITS

EMAC-91/60 DT

- Ideal for networks
- 91MB disk/60MB tape
- SCSI intelligent interface
- Mirror image/file-by-file backup
- Supports multiple cassettes
- Disk utility, 60MB cassette, cable and terminator included

EVEREX, Ever for Excellence, EMAC, Hayes, TOPS, AppleShare, MacServe, and Memorybank Manager are trademarks, and registered trademarks of their respective companies. © 1987 Everex Systems, Inc., All rights reserved.

DRIVING MACHINES

TAPE BACKUP
EMAC-60T
- 60MB high capacity cassette
- Data transfer 3.5MB/minute
- Mirror image/file-by-file backup
- Supports multiple cassettes
- On-line "help" windows
- Cable and terminator included
- SCSI intelligent interface

DELUXE HARD DISK/TAPE BACKUP
EMAC-40/60 DT Deluxe
- 40MB disk/60MB tape
- Zero footprint design
- Ideal for networks
- SCSI Intelligent interface
- Mirror image/file-by-file backup
- Cables, terminator, cassette, tape software, and disk utility included

HIGH CAPACITY FILE SERVER
EMAC-FS100
- 261MB high capacity storage
- Built-in tape backup, 5MB/min
- SCSI intelligent interface
- Perfect for networks including: TOPS™, MacServe™, AppleShare™
- Memorybank Manager™ software included and pre-loaded

Call EVEREX today

415-683-2222

Ask about our authorized dealership program.

Please circle 151 on reader service card.

EVEREX

Everex Systems, 48431 Milmont Drive, Fremont, California 94538

GIVE MacUser AS A GIFT

A gift subscription to MacUser will bring your colleagues, clients or friends important information about the products and applications that will help them become a more powerful Mac user.

Every issue delivers new product evaluations, in-depth reviews of the hardware and software they can use to increase performance and hands-on power tips, techniques and hints to squeeze more power from their Mac. No other magazine can deliver the applications and insights like MacUser!

There's no better gift for any Mac user—and if you act today, you'll SAVE 58% OFF the annual single-copy price of $47.40! One year of MacUser—12 big issues—only $19.97! Give the gift that's delivered all year long—give MacUser! For FAST SERVICE, call 1-800-852-5200 today!

MacUser—P.O. Box 52461—Boulder, Colorado 80322-2461
Please send MacUser Gift Subscription TO:

Mr./Mrs./Ms._____
Please print

Company_____

Address_____

City_____ State_____ Zip_____

Send signed gift card FROM:

Mr./Mrs./Ms._____

Company_____

Address_____

City_____ State_____ Zip_____

☐ Bill me later for $19.97 ☐ Payment for $19.97 enclosed

Charge my: ☐ AmEx ☐ Visa ☐ MC

Card No._____ Exp. Date_____

Please allow up to 60 days for delivery of first issue. Add $12 per year for postage outside USA, US funds only. Annual basic subscription price is $27.

by Dan Cochran

Answers From the Mac Team

Got a Mac problem? Something that you'd like explained? Something you can't find the answer for anywhere else? Apple's Dan Cochran will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Dan care of MacUser, 25 West 39th Street, New York, NY 10018. Dan will read all of your questions, but, unfortunately, he may not be able to answer individual queries.

COMPATIBILITY

Q. I am a new Mac Plus owner. The SE is in and the Mac II is on the way. What will happen to the Mac Plus? What is your honest professional opinion on this subject? The Mac Plus is a great machine and *was* Apple's flagship. Your answer may have a vital impact on my business, so tell me: What will become of the Mac Plus?

T & T TURTLE GRAPHICS
CARMEL, NY

Q. I have a 512K Macintosh and an 800K external drive. I have been considering enhancing my Macintosh but I'm wondering, what are the advantages? If I don't upgrade will I be left behind as new software becomes available? I have also heard that the new 128K ROMs have been responsible for power supply failures. Is this true?

BILL FANNUCCHI
ARENA, WI

A. *While these two questions aren't exactly identical they are representative of a very common genre of concern: "Will my current machine serve my needs and requirements in the future?" While there isn't one right answer for everyone, here are a few useful facts. You should be able to decide for yourself.*

1. The Macintosh Plus has a very substantial installed base. Unless a software developer has a specialized application that requires huge amounts of memory (more than 4 megabytes) or that requires color or expansion cards, they'd be foolish (in fact, they'd have to go out of their way) to ship an application that wasn't Macintosh Plus compatible. The Macintosh Plus owner is protected here by the simple yet compelling laws of economics.

2. The Macintosh SE offers improved performance, expandability and the convenience of an internal hard disk. But it's still a Macintosh. Properly behaved applications developed for the SE will run on the Macintosh Plus and vice-versa.

3. Some highly specialized applications developed for the Macintosh II won't run on either the SE or the Plus. If you are anxiously awaiting the latest and greatest computer-aided circuit design program for your Plus you might be out of luck. If I were a developer for this high-end market I probably wouldn't compromise and would design my program specifically for the Macintosh II. If I could get it to run on a Plus or SE, all the better. But I wouldn't lose any sleep over it.

4. Any piece of equipment you own is useful as long as you perceive it to be. My old AT&T push-button telephone pales technically when you look at the new cordless and cellular technology products today. But it gets the job done. Don't be misled or awed by new technology. If you've got a working solution to your problem you're better off than most people.

5. Yes—things will change. This is inevitable and desirable. Apple is committed to remaining the technology leader in the industry. We will occasionally have to sacrifice compatibility for new functionality and power. If we didn't you'd still be staring at a "A>" prompt on some funky monitor.

6. I've heard power supply problems blamed on a lot of things but never the new ROMs. Go ahead and upgrade to a Plus. While I wouldn't recommend that anyone go out and scrap their Plus because of SE technology, owners of older 64K ROM 128Ks and 512Ks will soon be left in the dust with respect to newer software. And most of the new, exciting Macintosh applications will only shine when they are used with 1-megabyte machines.

DAMAGED DESKTOP

Q. I have recently come across a problem that is new to me and that I don't know how to correct. I have many documents on a System disk with *MacWrite*. Just a short while ago the disk suddenly became inaccessible through the desktop. If I boot the disk it will just keep cycling, but not open or display on the *Finder*. If I boot from another disk first it will cycle between the two. It will not open to the desktop so that I cannot change the *System* or any other component. If I insert another disk and open it to a document, then insert the damaged disk, close the first and open the damaged one I can get to the documents, but if I quit the damaged document it will not return to the desktop but will start the cycling noises again and give me only a blank desktop.

L. JELF
INGRAM, TX

A. *Disks can occasionally become defective to the point where the best solution is to throw them away. But once in awhile, the* Finder *can get confused because of a bad desktop file. This is a special file that contains* Finder*-specific information which is required to display the disk and its contents on the desktop. A bad desktop file doesn't necessarily mean that the other documents on your disk are damaged. If you can still open your documents on your damaged disk as you describe, the first thing I'd do is to open them one at a time and do a "Save As" to another disk that's known to be good. This will at least protect your data if the second step happens to fails. You can now attempt to rebuild the desktop file. Boot your damaged disk while you simultaneously hold down the* COMMAND *and* OPTION *keys. Your Macintosh will attempt to reconstruct the desktop file. If this solution works your disk will appear on the desktop although your folders will probably have lost their names. But you'll be back in business.*

LINE COUNTS?

Q. In contrast to word processors on CP/M and MS/DOS machines, none of the programs for the Mac, as far as I know, counts the lines of a document. This is quite an inconvenience once the top of the document is off the screen, and whenever I want to know how many more lines can be accommodated on the page I am working on. Also, the Page Setup menu does not allow me to specify the number of lines per page. Why has the line count been so neglected on the Mac, and are there any known tricks to remedy the problem?

GEORGE KROTKOFF
BALTIMORE, MD

A. *If I stretch back far enough I can remember* WordStar*ing away on my Zentec ZMS-80 micro. And I can vaguely remember the* WordStar *lines per page status field that constantly changed as I entered text. I also recall it as being an extremely useful indicator of how much more I had to type for a college assignment (especially if the end result of my efforts was tied to quantity, not quality).*

MacTilt® & MacTilt SE®

Professional Ergonomic Workstations for the Macintosh. See and feel the difference they make!

In business environments where operators spend long hours in front of their computer, the Mac's small screen size and the low physical profile can cause physical discomfort and reduced productivity. A common solution to the low profile problem was to place the computer on top of a hard drive. This is no longer a solution for the Mac SE with its internal hard disk or the Mac Plus when used with a vertical hard drive or a file server.

Phone books, shoe boxes, and other creative ideas have been tried to bring the Mac up to eye level, but with little success.

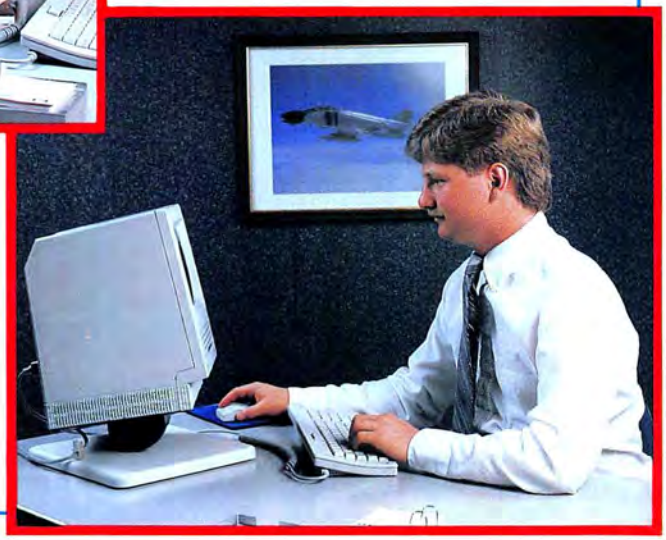
MACTILT IS THE SOLUTION!

By raising the Mac 4 inches, providing 30° tilt, and 360° rotation, MacTilt provides the increased height and the adjustability needed to reduce glare, and to ease eye, neck and back strain. Mounting clips assure stability yet allow instant portability.

MacTilt SE is designed especially for the Mac SE. The original MacTilt fits the 128K, 512K, and the Mac Plus. It comes standard with a universal drive bracket and is available in platinum or beige. Optional accessories include a security system, hard disk bracket, dust covers, etc. MacTilt and MacTilt SE are unit priced at $89.95.

For the finest accessory available for your Mac, see your Apple dealer or contact:

ERGOTRON inc
1621 E. 79th Street • Mpls., MN 55420
612-854-9116 • 800-328-9839
TLX 4310015



Please circle 187 on reader service card.

With most CP/M and MS/DOS word processing applications, the number of lines per page is simply a function of the size of the paper and the point size of the type. As I recall you had to tell WordStar*'s Configuration program both of these parameters or you could simply specify how many lines per page you desired.*

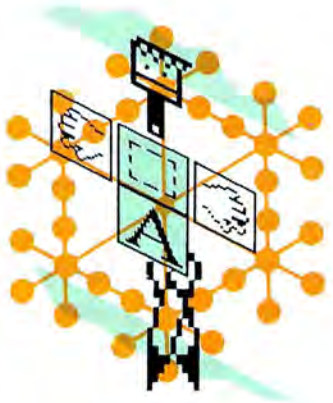
The Macintosh doesn't restrict you to a single type size in each document. The headline could be in 48-point Helvetica. The subheadings might be in 18-point Zapf Chancery. The main body of the text could be in 12-point Times. Because of this flexibility in type size a lines per page count would be quite meaningless. What would a "line-count" of 20 really mean? Twenty lines of 12-point type? Ten lines of 24-point type? Or ten lines of 20-point type and five lines of 24-point? You get the idea. I suppose that a word processing program could tell you how many lines are left in a document assuming your existing Page Setup parameters and the type style you are currently using. But I don't know of any that do. In a single page document the white box in the vertical scroll bar can be used as a visual indicator of the remaining space available on a single page.

ANDY MARTIN

MS BASIC PRINTING

Q. I enjoy your column very much and find your "plain English" explanations always enlightening even if they don't cover a problem of my own. I have been programming for some time with *Microsoft BASIC* 2.1 but have just run across this problem. I have made use of the ROM routines CALL TEXTFONT, CALL TEXTFACE, etc. in order to output a particular style of text to the screen, but when I try to use the same commands in a printout (with LPRINT), the program seems to ignore these calls and only prints in what I call "typewriter type." Is there any way to print in, say, 14-point Venice, other than with a word processor? If BASIC can't access these routines for printout, what other language does? Will I have to learn C, Pascal, or assembly language? I figure if *MacWrite* can do it, it can be done.

ROBERT TELLEFSEN
NAPA, CA



A. *The* Microsoft BASIC *LPRINT command simply sends ASCII character codes to the ImageWriter. As a result all you'll get is the ImageWriter resident font and font style that is currently defined. You can manipulate ImageWriter resident fonts and print using different ImageWriter type styles (bold, underlined, etc.).*

These control codes are described in the ImageWriter Technical Reference Manual *available from Addison-Wesley. If, however, you want to print Macintosh screen fonts you'll have to take another approach.*

The following example code segment will output the string, "Hello," on your Image-

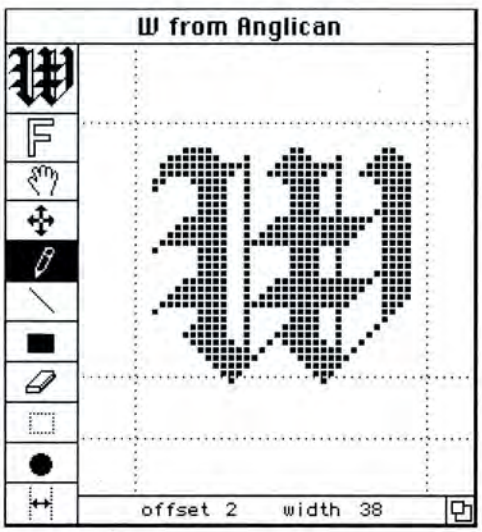
The Best Bitmap Font Editor.

Imagine gaining absolute control over your letters, documents, reports, and pictures, by customizing the actual printed letters themselves. Create unique individual characters never seen before. Call these characters up with the stroke of a key. Size them precisely and repeatably up to 127 points high.

With FONTastic Plus, all this will become second nature to you. FONTastic Plus gives you unlimited access to every Macintosh™ bitmap font. And the power to make as many new fonts as you can imagine. Text fonts, display fonts, symbol fonts, logos or foreign language fonts are all as simple as clicking the mouse.

Fatbits editing like MacPaint™—but with three sizes of fatbits—makes it easy to create and modify characters. Use cut and paste to copy common letter parts from one character to another. Background and guideline layers help maintain a consistent look from letter to letter. An integrated font mover makes installing fonts as easy as cut and paste. Instant print samples let you see how the font looks in print, without having to install it and type a sample.

FONTastic Plus is the next step in font editing. Fast, powerful, easy to use, and only $79.95.



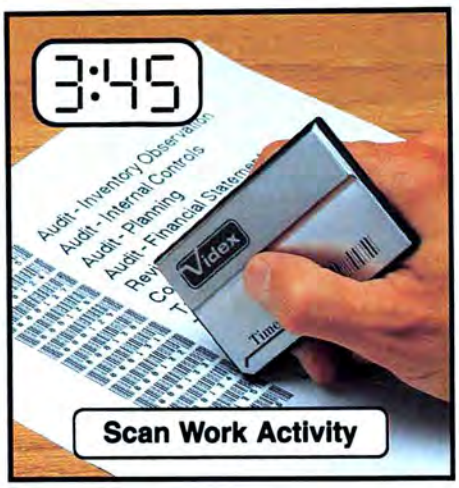
FONTASTIC™ PLUS

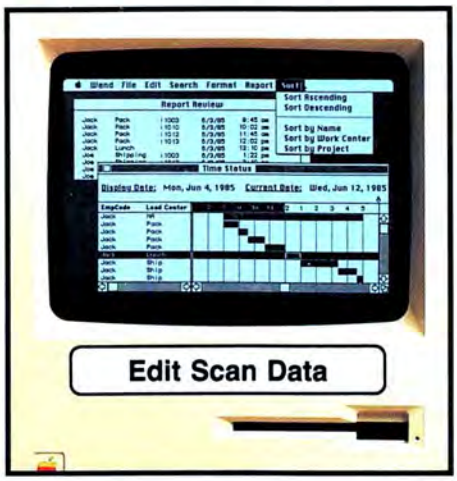
ALTSYS CORPORATION

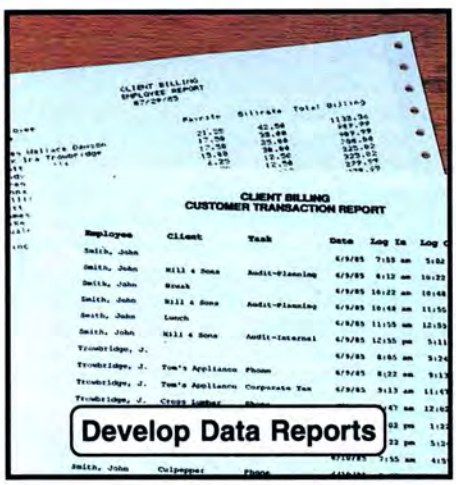
720 Avenue F, Suite 108
Plano, Texas 75074 (214) 424-4888

Please circle 99 on reader service card.

TimeWand™ - Keeping track of time...







Six easy steps to time management!

The Videx TimeWand™ is an intelligent yet inexpensive bar code system for your business needs. Small enough to fit easily into a shirt pocket and weighing in at less than two ounces, TimeWand gives a new dimension to the concept of fully portable bar code readers.

Versatility is the hallmark of the TimeWand system. With its built-in microprocessor, TimeWand puts the power of a computer into the palm of your hand. Power that lets you actually change how TimeWand works. Whether you want to read different types of bar codes or program the wand to read bar codes in a certain order, TimeWand can accommodate your needs.

Available in three different memory configurations, TimeWand can store from 2,000 to 16,000 characters in its internal memory. This means you can hold from a few hundred to a few thousand bar codes in the TimeWand before transferring the information to a host computer system.

TimeWand time-stamps *each* bar code as it's read. This lets you know not only what the bar code says, but *when* the code was read.

The TimeWand's recharging/download station uses a standard RS232C serial connector that allows you to communicate with the wand through a variety of host computer systems. Since the communication is keyless, the scan information is sent quickly and error free. Currently, software packages are available for the IBM PC (and compatibles), Apple //, and Apple Macintosh personal computers.

Put the power of TimeWand in your own hands... and let it work for you.

TimeWand (2K version) - **$198**
Recharger - $149
TimeWand Manager Software (Macintosh) - **$499**
TimeWand Communications Software (IBM) - **$299**

Videx®

1105 N.E. Circle Blvd., Corvallis, OR 97330
503-758-0521

Videx is a registered trademark and TimeWand is a trademark of Videx, Inc.

Please circle 185 on reader service card.

Writer in 14-point Venice bold. Of course, the 14-point Venice font must be in your current System file. (This will only work with MS BASIC *versions 2.0 and higher.)*

```
OPEN "LPT1:" FOR OUTPUT AS #1
** Open the ImageWriter for Output **
WINDOW OUTPUT #1
** Make ImageWriter the output "Window"**
CALL TEXTFONT (5)
** Set Font to Venice **
CALL TEXTSIZE (14)
** Set Font Size to 14 point **
CALL TEXTFACE (1)
** Set Font style to bold **
PRINT "Hello"
** Buffer "Hello" to output file **
CLOSE #1
** Close output file and print **
```

Thanks to the helpful folks in Microsoft's Technical Support Group for providing this solution.

TDDs

Q I just found your magazine and enjoy it very much. I work with the deaf, and after I bought my 512E I wanted to use my Macintosh as a Telecommunication Device for the Deaf or TDD. So I bought Apple's 1200-baud modem and the *MacTerminal* program. But I could not get the system to work with the TDDs.

I believe the problem is because the line is not direct to the TDD, but the user at the receiving end (usually) must connect the telephone to the machine. Because this is the only application for which I need the modem, I had to return it and the program. My dealer does not know what to do to make it compatible with TDDs. Any ideas? I know there has to be a way.

BOB LIEDER
FRESNO, CA

A *As I understand it, a TDD is a piece of equipment that allows the deaf or hearing impaired to communicate with text over standard phone lines. A typical TDD consists of a keyboard, an inexpensive LED display and a built-in special modem. The user connects the TDD either to a telephone or directly to a phone jack, dials the telephone number of another TDD, and both parties can type to each other.*

That sounds like a reasonable application for a Macintosh, a modem and a telecommunication program. The problem is most TDDs don't communicate using the same codes that most microcomputers and modems do. Microcomputer communication software and modems communicate using 7- or 8-bit ASCII codes to represent the letters of the alphabet. This is certainly the case if you are using MacTerminal *and an Apple or Hayes type 1200-baud modem. Most TDDs communicate using 5-bit Baudot codes to represent characters. Ergo, Macs and TDDs will have a difficult, if not impossible time, communicating properly.*

Some TDDs (such as those available from Crown Research in California) have a switch which puts them in ASCII mode. You could then use MacTerminal *and an Apple modem to communicate with any TDD that has ASCII capability. You'd still have to configure* MacTerminal *to the expected baud rate, parity and bits per character expected by the TDD. Another solution is to find a special Baudot modem for your Macintosh and a piece of software that knows how to communicate with it. Perhaps our readers have some suggestions or have already solved this problem?*

FROM THE DUBL-CLICK COLLECTION

WORLD-CLASS FONTS!

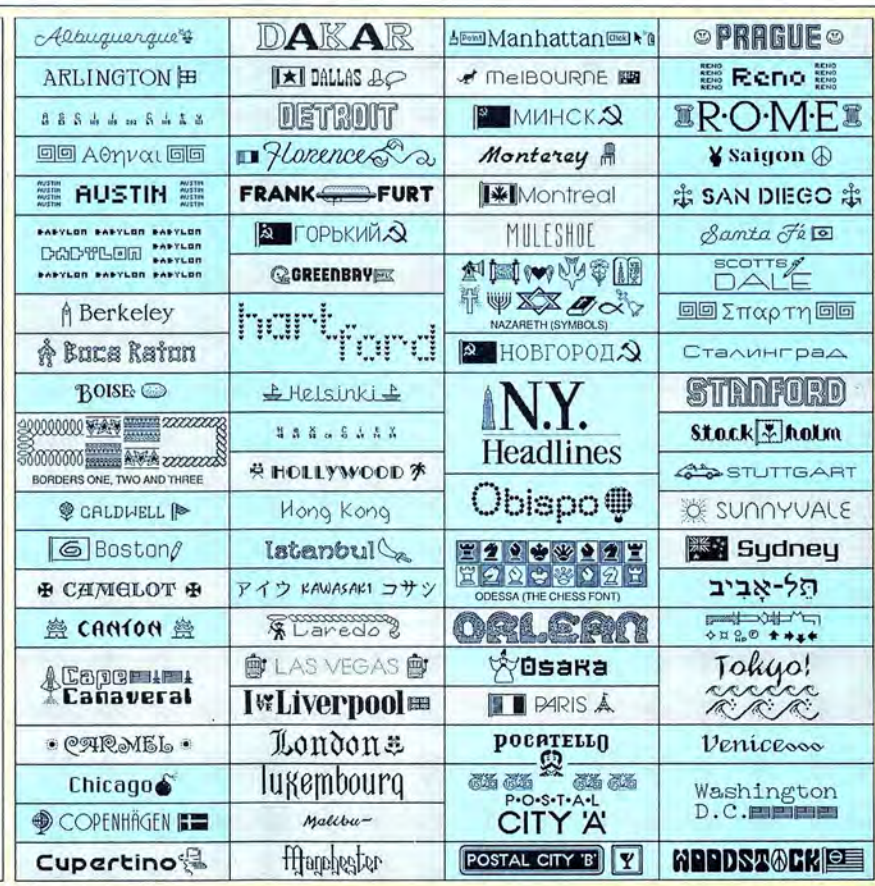
Volumes One and Two
Each Volume is a 3 Disk Set (400K per disk)

3 DISK SET $39 EITHER VOLUME

6 DISK SET $59 BOTH VOLUMES

Includes new programs: Font Charter (application), BigCaps and DefaultFont (desk accessories).

DUBL-CLICK SOFTWARE, INC.
18201 GRESHAM ST. / NORTHRIDGE, CA 91325
Ask your dealer, or order direct...
(818) 349-2758



Please circle 108 on reader service card.

It's one thing to have great graphics. It's something else to make them move.

VideoWorks™ II for:

- Business Presentations
- Animated Slide Shows
- Multi-media Storyboards
- Educational Movies
- Entertaining Animations
- Suggested Retail Price $195

MacroMind has been making the Macintosh look great for years. Now let us make you look great with VideoWorks™ II! The Overview window creates slide shows that can include animation, wipes, fades, timers or sound. VideoWorks™ II works great with the Macintosh II (in either 16 or 256 colors) or the Macintosh 512, Plus, SE.

Create animation on your Macintosh with VideoWorks™ II. Take any artwork you have and create animated presentations, storyboards, educational courseware, point of sale displays or music-videos. From MacroMind® Inc., the creators of MusicWorks™, M.U.D.™, Art Grabber™, ComicWorks™, GraphicWorks™, Maze Wars+™.

Original VideoWorks owners can upgrade to VideoWorks II for $100. Send your check, VISA or MC order along with your VideoWorks Movies disk.

VideoWorks II

VideoWorks™ II © 1987 MacroMind™ Inc., 1028 W. Wolfram St., Chicago, IL 60657 (312) 871-0987. Comes with three disks: Program & Tutorials, Clip Animation, Artwork & Movies and a Guided Tour training disk. Not copy protected. Distributed by Brøderbund Software. Ask your local dealer.

MacroMind® Inc.

Please circle 193 on reader service card.

SCREEN BURN IN

Q. I have two questions concerning Macs. First, concerning screen "burn-in." I typically keep my Mac Plus powered up for 7 or more hours on a working day. I have seen ads for programs that blank the screen at a keystroke. I just turn down the brightness control for periods of low activity. Is this an effective precaution? What kind of use will cause burn-in anyway? Second, I've read reviews of a multi-language development system called *MPW*. It sounded like the *ne plus ultra* of Mac development systems, so for several months I've been perusing ads, looking for it to no avail. What is *MPW*, who makes it, where can I get it, how much is it, etc?

JONATHAN GORDON
NEW YORK, NY

A. *You can't completely avoid screen burn-in, just as you can't avoid getting old. The images you see on your Macintosh screen are the result of millions of electrons being systematically fired at a phosphor coating on the back of your display. The phospor lights up, you see the results on your display, and eventually the phosphor will deteriorate or "burn-in." The best way to avoid screen burn-in is to never to use your Macintosh. This is hardly an optimal solution. You can reduce the effects of screen burn-in by attempting to ensure that you aren't constantly displaying the same image on your screen for a long period of time. That's why some of the "screen-sleep" or "black-out" utilities and INITS are very useful in reducing this phenomenon. Random white patterns created against a primarily black background will minimize the effects of screen burn-in.*

A particularly useful screen-sleep utility is the Pyro! *INIT which is included with* PowerStation *from Software Supply. This INIT automatically blacks your screen after a pre-defined period of non-usage and amuses you with a random fireworks display. Turning down your brightness control is helpful but not as effective as a utility which completely blanks the screen.*

In any case I wouldn't worry about it. Cars get old, televisions get old, screens get old. Don't get too obsessed by it.

MPW *is an acronym for the* Macintosh Programmer's Workshop. MPW *is an extremely powerful assembly-language development system for the Macintosh.* MPW *was developed by Apple Computer and is available from the Apple Programmer's and Developer's Association (APDA).* MPW Pascal *and* MPW C *are also available from APDA and must be used in conjunction with* MPW. MPW *isn't for the faint of heart, but then it doesn't have to be. There are many better language solutions for the beginning or intermediate programmer.*

ANDY MARTIN

WITH PAPER PLUS 500 YOUR LASERWRITER WON'T NEED A BABYSITTER.

If your laser printer needs a babysitter to feed the paper tray every 10 to 15 minutes, you need PAPER PLUS 500™; the new sheet feeder from The Laser Connection.

PAPER PLUS 500 attaches to any laser printer using a Canon® CX engine including Apple® LaserWriter®, QMS® Kiss™, QMS-PS® 800, HP® LaserJet™; and others. With a 500 sheet capacity and envelope capability, PAPER PLUS 500 can keep your printer humming for nearly an hour without taking a break. That's a 400% increase in efficiency—enough to give your present baby sitter a promotion! PAPER PLUS 500 is easy to set up and comes with its own high capacity output stacker.

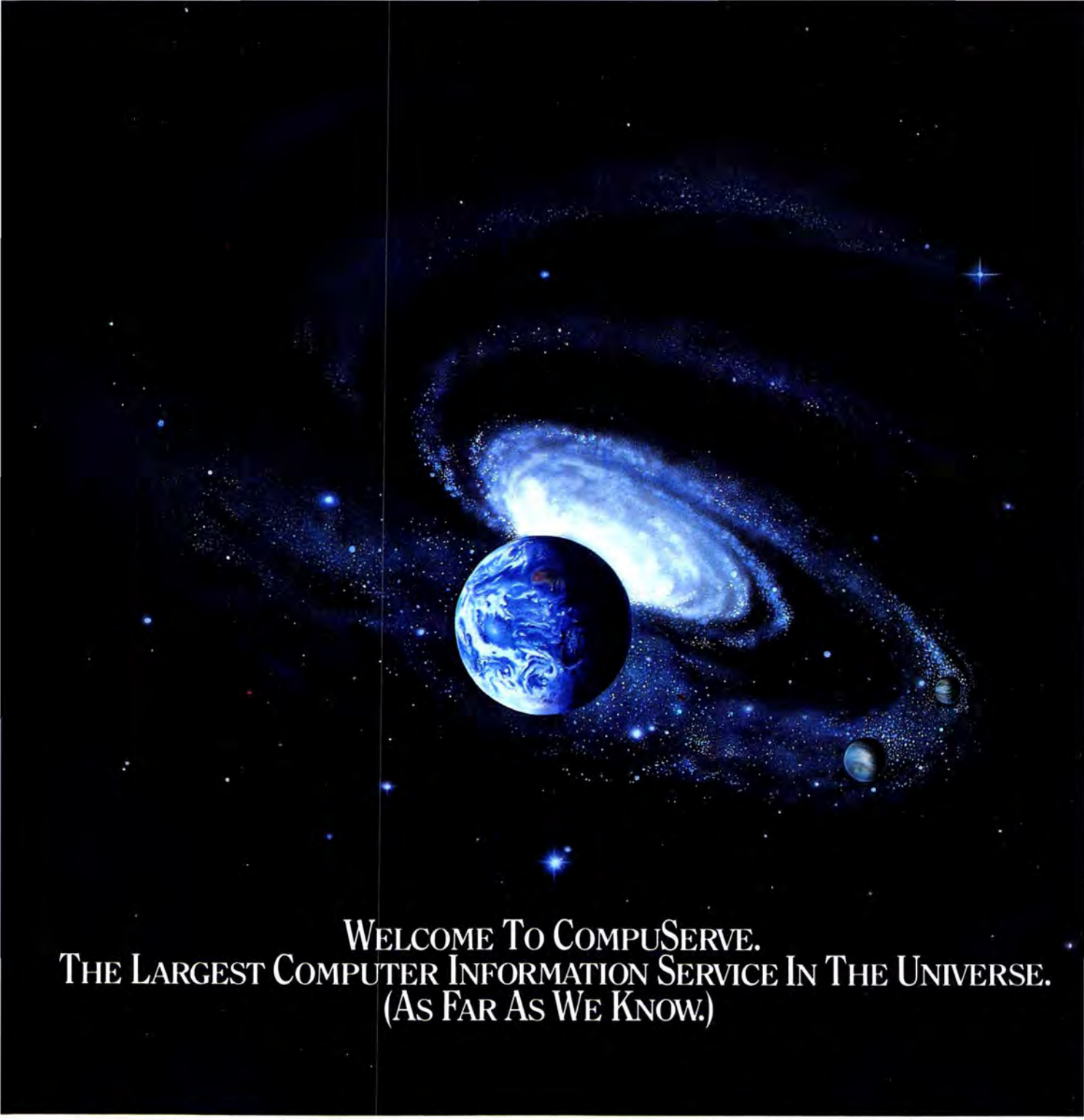
For more information call or write The Laser Connection:
P.O. Box 850296,
Mobile, Al. 36685
1-800-523-2696

Suggested Retail Price $995.

THE LASER CONNECTION
Enhancement products for laser printers
A QMS® Company

Apple and LaserWriter are registered trademarks of Apple Corp., Inc; QMS is a registered trademark, QMS-PS is a trademark of QMS Inc.; HP is a registered trademark and LaserJet is a trademark of Hewlett-Packard, Inc.; Canon is a registered trademark of Canon U.S.A. Inc.

Please circle 220 on reader service card.



WELCOME TO COMPUSERVE.
THE LARGEST COMPUTER INFORMATION SERVICE IN THE UNIVERSE.
(AS FAR AS WE KNOW.)

More people use CompuServe than any other online computer information service on Earth.

Over 375,000 members access hundreds of information, communications and entertainment services online.

Thousands with similar interests and special expertise converge regularly and exchange ideas on an ever-expanding list of special-interest Forums.

They have access to a combination of more financial information, a greater variety of shopping services, and deeper research resources than any other online computer service. Anywhere.

Of course, it's conceivable that there's a service like ours somewhere that could give you more for your money. But you may have to travel a few light-years to find it.

Instead, all you have to do is visit your nearest computer dealer today. To order CompuServe direct, or for more information, write: CompuServe, 5000 Arlington Centre Blvd., Columbus, Ohio 43220. Or call 800 848-8199. In Ohio and Canada, call 614 457-0802.

CompuServe®

AN H&R BLOCK COMPANY

Please circle 208 on reader service card.

TIP SHEET

COMPILED BY DAVID SCHARGEL

Found a trick, shortcut or a smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o *MacUser*, 11 Davis Dr., Belmont, CA 94002. We pay at least $25 for every hint we publish, plus we'll print your name and hometown.

Whoops! We goofed. In the July 1987 Tip Sheet, the *Ready, Set, Go! 3* tip and its related screen shot were incorrect. The actual procedure is much simpler than was shown, and you don't need to use another application. Thanks to all of you who wrote and pointed out our discrepancy.

We incorrectly said that with *Ready, Set, Go! 3* "It is not possible to wrap text around other text." We couldn't have been more inaccurate. Simply choose SPECIFICATIONS from the Special menu and pick "run around." You can have text wrap around the text block just as it is done for a picture block.

MACWRITE

The main window in *MacWrite*, version 4.5, can't be resized beyond the standard 9-inch Mac screen when working with a large monitor or a software screen expander, like *Stepping Out*. Using *ResEdit*, however, you can patch *MacWrite* 4.5 so that the window expands to just under a full page. The patch consists of two parts: the first patches *MacWrite*'s program code to allow for a larger window, while the second part changes the default size of the window.

Using *ResEdit*, open a copy of *MacWrite* by double-clicking on the *MacWrite* line. Then, open the CODE resource with an ID of 9. To do this, first double-click on the CODE line in the *MacWrite* window, then by double-clicking the line "CODE ID=9." The hexidecimal window will open. Choose FIND HEX from the Search menu. Have *ResEdit* search and replace the only hexidecimal occurrence of "0136" with "0300." Finish the first part of the patch by closing all the windows and saving the changes to *MacWrite*. The *MacWrite* window can now be resized. It is not necessary to proceed with the second step, unless you want *MacWrite* to automatically default to the larger window.

Use *ResEdit* to open the copy of *MacWrite*. Double-click on the WIND resource line and locate and open, by double-clicking, the line "WIND ID = 301." Change the value of 337, found in the third edit box (for boundsRect), to 768. Close all windows, and save the changes to *MacWrite*. When you now use *MacWrite* on a large screen, the default window will now open to just under a full page size.

KEVIN HARRISON
ALBUQUERQUE, NM

DISKTOP DA

While viewing a list of files you can make multiple selections to perform commands on many files at once. Just SHIFT-CLICK to select individual items or SHIFT-DRAG to select a continuous list of files.

DiskTop has a few features designed for multiple selections. When a number of files are selected, the Sizes button tells you the total of all the files. Clicking on the Delete button, when you have multiple files selected, provides you with an option to delete every file in the selection without confirming each file.

PAUL CAHLSTADT
MANITOBA, CANADA

DARK CASTLE

Wouldn't it be neat to walk on air? In *Dark Castle* it's possible! If you press the duck key with either the up or down key as you ascend or descend a staircase or ladder, you will walk on air when you reach the top or bottom. Once you are in the air, experiment with different commands. Some commands allow you to walk on air, while others let you jump higher than you thought possible.

BRYN WILLIAMS
STATE COLLEGE, PA

FULLPAINT

To easily create dashed boxes and dashed horizontal or vertical lines, create a checkerboard pattern of two diagonally opposed 4 X 4 solid boxes. With this pattern selected, hold down the Option key while drawing a square, or Shift-Option while drawing a line. A dashed box or line is drawn.

GARY D. MCGATH
HOLLIS, NH

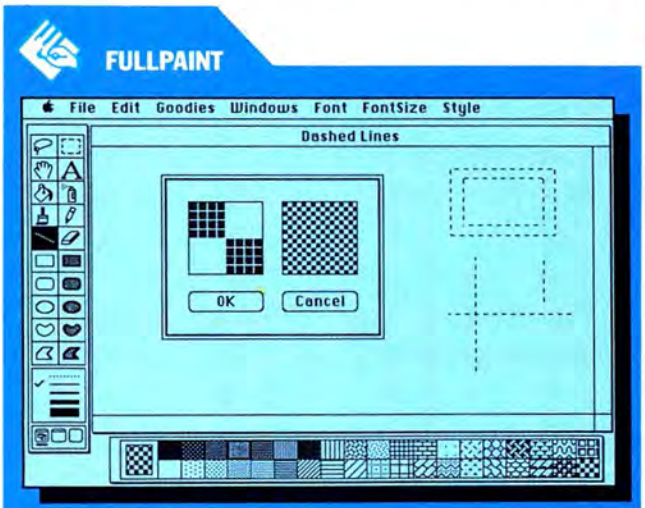
SUPERPAINT

While in the Paint layer you can have the marquee tool selected and still be able to use the lasso tool. Just hold down the OPTION key and the cursor becomes a lasso, ready to select any odd-shaped bitmap.

DAVID CONDIT
WARRENTON, VA

PROFESSIONAL COMPOSER

A useful feature in *Professional Composer* is that it "consolidates" rests in parts when PRINT PARTS is chosen from the File menu. However, in all parts other than the first,



You can use the Option-Draw capabilities of *FullPaint* to easily create dashed boxes and dashed horizontal or vertical lines. Create a checkerboard pattern as shown and hold down the Option key while drawing a rectangle or SHIFT-OPTION while drawing a line.

Raw Power

Fastest 80MB Available for Macintosh II

A complete family of internal and external hard disk sub-systems for Macintosh Plus, SE & II.

Call today for the name and number of your nearest CMS dealer.

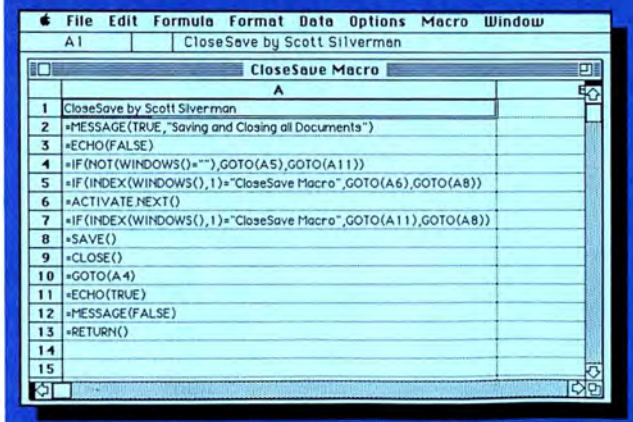
CMS Enhancements, Inc.
1372 Valencia Avenue, Tustin, CA 92680 (714) 259-9555
Telex (023) 371-8711 FAX (714) 549-4004

CMS®

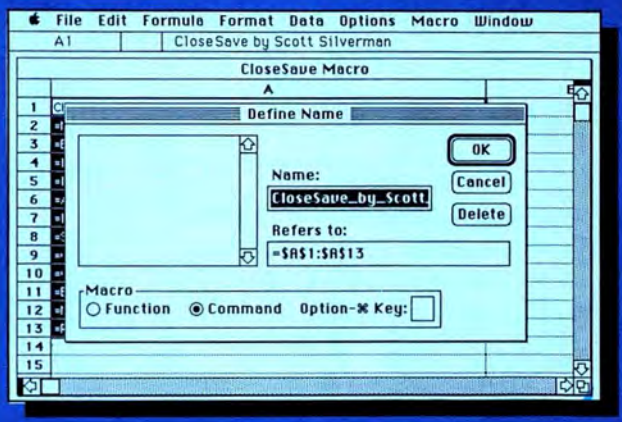
Macintosh is a registered trademark of Apple Computer Corporation.
CMS is a registered trademark of CMS Enhancements, Inc.

Please circle 43 on reader service card.

EXCEL



1 Setting up the macro takes two steps. Start by entering this macro in a blank macro sheet and make sure you save the macro as "CloseSave Macro" (or it will not function properly).



2 Begin installing the macro by selecting the entire macro (A1:A13) and selecting DEFINE NAME from the Formula menu. Then click in the COMMAND radio button and click OK. Later, whenever you are ready to save all of your open documents, simply choose RUN from the Macro menu and double-click on the line "CloseSave by..."

rehearsal marks are ignored if rests both precede and follow the rehearsal mark. This problem can be fixed if you insert a thick barline from the Barlines palette at the left side of any measure in which you insert a rehearsal mark. In fact, any barline at rehearsal marks other than the standard one will force *Professional Composer* to break consolidated rests around rehearsal marks in parts where rests both precede and follow the rehearsal mark.

JAMES GREESON
FAYETTEVILLE, AR

EXCEL

The *Excel* macro shown in the box is designed to save time when closing a set of open *Excel* documents. Normally, when you specify CLOSE ALL, you are asked if you want to save each and every document. Running this macro automatically saves each open document, except for the macro sheet that this macro is in.

SCOTT SILVERMAN
EAST BRUNSWICK, NJ

In *Excel*, you can select an entire worksheet without using the mouse by typing COMMAND-A. This is the equivalent of clicking in the upper left corner of the worksheet.

CARL PARKER
MADISON, WI

If you need to show or print all the formulas in a worksheet (rather than the data), just open a new macro sheet, copy the required cells from the worksheet and paste them into the macro sheet.

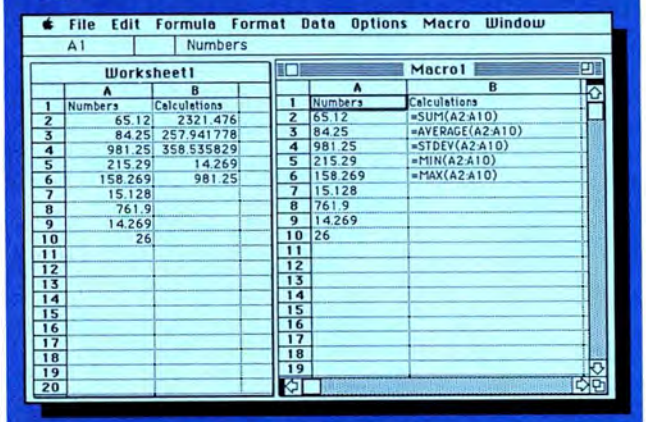
If you don't include all related cells, the cell references within the macro sheet may be incorrect or missing.

CARL J. MADSON
MENLO PARK, CA

TOPS

It's possible to connect your Macs to a Novell network using *TOPS*. Simply take one of the PCs in your Novell network and connect it to your *TOPS* network, too. This PC becomes the "gateway" ma-

EXCEL



Excel **normally doesn't allow for the printing of formulas. If you create a worksheet and want to show or print the formulas, copy the cells to a macro sheet. Now all formulas will be shown with their correct reference.**

For Mac Savings:

1-800-MAC-DISK

UPGRADE SPECIALS

128K-512K	109.00
128K-1024K	229.00
512K-1024K	129.00
512K-2048K	399.00
128K-2MEG	499.00
SCSI Port	69.00
68020	395.00
68020/68881	595.00
1 Meg SIMMs	199.00

- 30-Day Money-Back Guarantee on All Upgrades.
- Over 4500 Upgrades Completed
- 6 Month - 3 Year Warranty

Dove Upgrades:

MacPlus 2MB	249.00
512K-1024K	139.00
512K-2048K	379.00

Hardware

Hard Disk Drives:

Magic20	545.00
Magic91 (Mac II)	1599.00
MacBottom 45MB	1239.00
ProApp20S	649.00
ProApp40S	1099.00
Magic 20MB Tape	599.00
Magic 60MB Tape	699.00
Numeric Turbo	109.00
Turbo Mouse	85.00
MacFan	88.00
MacVision	184.00
Thunderscan 4.0	195.00
A+ Optical Mouse	99.00
Microtek Scanner	1395.00
Radius FPD Screen	1595.00
PC-Mac Keyboard	119.00

Ribbons

Black Ribbons	2.95
Colored Ribbons	4.50
Multicolored Ribbons	9.00

Accessories

The Macintosh Bible	21.00
MacPlus Bag	55.00
Mac SE Bag	69.00
Image II Bag	55.00
Phone Net/Easy Net	39/29
Disk File/30	6.95

Software

Cricket Draw	172.00
Dark Castle	33.00
Financial Plus	218.00
Fontographer 2.2	252.00
GraphicWorks 1.1	61.00
Intermail	236.00
LabView	1849.00
LaserPaint	312.00
Lightspeed C	125.00
Lightspeed Pascal	90.00
Mac3D 2.0	99.00
MacGolf	35.00
MacLink Plus	124.00
MacMoney	39.00
MacZap	32.00
Microsoft Excel	229.00
Microsoft Word	239.00
Microsoft Works	180.00
MiniCAD 3.0	347.00
NFL Challenge	89.00
Omnis3+	279.00
Parameter Mgr.+	289.00
Power Point	215.00
Reflex	55.00
Scoop	310.00
Shadowgate	36.00
Smart Alarms	33.00
Stella	236.00
SuperLaserSpool	98.00
SuperPaint	89.00
Trapeze	175.00
Turbo Pascal	56.00
Word Tools	45.00
Works+Spell	33.00
Versa Term Pro	199.00
VIP	75.00

Magic30 Hard Drive
$699

Disks

Sony SS Boxed	11.60
Sony DS Boxed	16.80
Sony SS Bulk	1.04
Sony DS Bulk	1.34
MacDisk SS Bulk	.99
MacDisk DS Bulk	1.25

October Bargains!

800K Drive
$199

1200 Baud MagicModem
$99

Software Rentals

Try a software product before you buy it. Rentals are only 1/5 of the purchase price.

Ordering Information

National: Call 1-800-MAC-DISK
Texas: Call 1-800-2MAC-TEX
Our hours are 7:30am-7:30pm CDT. There is a $40 minimum on all orders. We accept Visa, MasterCard, C.O.D., Company and Institution PO's, and checks. You are not charged until we ship your order. Texas residents please add 7 1/4% sales tax. Prices are subject to change and items are subject to availability. Returns may be subject to a restocking fee.

Shipping Information

Minimum $3 additional. UPS Next Day Air & 2nd Day Air available.

MacProducts USA™ was formed by the consolidation of MagicProducts Vision Technologies, and MacLine. We are a full-service remarketer and producer of goods for the Macintosh.

MacProducts USA MacProducts USA™ MacProducts USA

9709 Brown Lane Suite E Austin Texas 78754 512-832-0335

Please circle 156 on reader service card.

chine. Using the Novell software, assign the gateway's drive E to the Novell server. Then, using the *TOPS* menu, publish drive E. Doing this allows all the Macs and PC on the *TOPS* network to see the Novell server.

DIM HUAG
NEW YORK, NY

WORD 3.0

Word 3.0 provides a fast way to return the insertion point to its most recent location. For example, if you are typing and notice an error several words back, correct the error, then type COMMAND-OPTION-Z. The cursor will return to where you were typing. This command actually works for the three most recent insertion point locations.

DAVE FARABEE
DAVIS, CA

Word 3.0 won't allow the ImageWriter to print in bidirectional mode with the standard Caps Lock, Shift and Option keypress combination while clicking OK. However, it can still be done; it just takes a few easy steps. Begin by holding down the Shift and Option keys before pulling down the File menu to choose PRINT. Then, hold down the Caps Lock, Shift and Option keys and click OK. Nothing will print. However, the next time you choose PRINT, without holding down any keys, you can click OK and your document will print bidirectionally.

JAIME GOMEZ
REQUENA, SPAIN

When working in *Word* 3.0, there are times when you might want to quickly extend the current selection. An extension is just a few keystrokes away with the little known "Extend To" command. Just type COMMAND-OPTION-H and you will see "Extend To" in the page number box. To advance to a specific character, simply type the character and the selection will extend to the next occurrence of that character. The command will differentiate between capital and lower case letters. To extend the selection to the end of a paragraph, press RETURN. This technique also works for tabs and new line marks (Shift-Return).

You can continue to extend any selection as long as "Extend To" shows in the page number box, which will be until you type COMMAND-. (period), choose another command or scroll with the mouse.

DAVE FARABEE
DAVIS, CA

Have you ever put out a draft copy of a document, only to have it interpreted as the real thing because someone "forgot" it was just a draft copy? Using *Word* 3.0 and a LaserWriter, you can ensure that this will never happen again. By including the PostScript code shown in the box, you can have the word "DRAFT" appear in large, outlined letters across every page.

KIM HANSEN
SEATTLE, WA

CRICKET DRAW

There is a little known trick, not present in *MacDraw* or *SuperPaint*, that allows you to gain total control of object placement with the ALIGN OBJECTS command in *Cricket Draw*. The ordering of objects drawn with *Cricket Draw* does not depend on their creation order or positioning, but rather in their layering. With this in mind, selecting an object and choosing BRING TO FRONT from the Arrange menu will later make that object the "point of reference" for future Align commands.

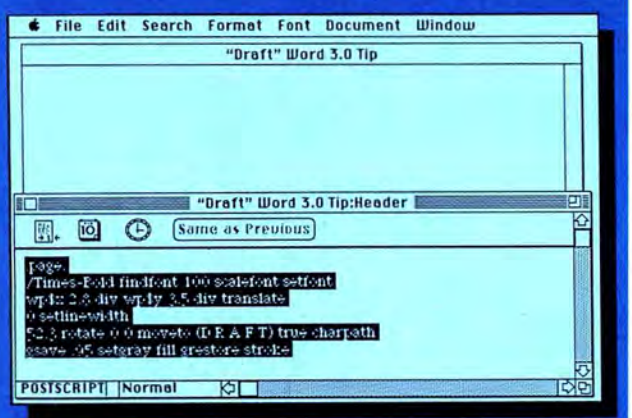
For example, when you have an object that you would like to align other objects with, select the item and choose BRING TO FRONT from the Arrange menu. Then, SHIFT-CLICK the other objects you want aligned and choose ALIGN OBJECTS from the Arrange menu. Regardless of the type of alignment done, the object on the "top" layer will remain in its original position.

BARTON J. BRADBURY
UNIVERSITY, MS

WORD 3.0

```
.page.¶
/Times-Bold findfont 100 scalefont setfont¶
wp$x 2.8 div wp$y 3.5 div translate¶
0 setlinewidth¶
52.3 rotate 0 0 moveto (D R A F T) true charpath¶
gsave .95 setgray fill grestore stroke¶
```

1 Choose OPEN HEADER from the Document menu and type in this text, exactly as it appears.



2 Select the text you just typed in and press COMMAND-SHIFT-S to get into the style definition mode. Now type "POSTSCRIPT" (it will appear in the lower left corner) and press Return. Everything should work fine after you close and save your header.

Don't just sit there waiting for us to get around to your problem or question. Copies of the deluxe, spiral bound edition of *The Power User's Manual: Over 1,000 Hints and Tips for the Macintosh* are now available for a mere $19.95, which includes shipping and handling. The manual has two cross-referenced indexes to help find tips fast and covers over 100 of the most popular Mac programs and peripherals. It's worth its weight in gold mice. Make your checks payable to Power User's Manual and send the order to: Power User's Manual Offer, 831 Federal Road, Brookfield, CT 06804. Bulk rates for clubs, organizations and schools are available from the same address.

QUALITY PRICE.

(Quality and price are inseparable at Warp Nine.)

Quality. And price. Not a match made in heaven. It's a match made at Warp Nine.

Just look at these prices. They're about 40% lower than you'd expect because we sell directly to you, eliminating the dealer's mark up. And dedicated as we are to low prices, we're even more dedicated to quality. In fact, we're so convinced of our quality that if after 30 days you don't absolutely love our product, return it for a complete refund.

Our commitment to a well-built machine is further reflected in our Quality and Assurance Report. It details every step of production and is signed by the person responsible for each step. Plus, there's a full one-year warranty available for the asking. And when you buy from us, you get an unlimited toll-free number to our technical support team for any questions you may have—something our competition doesn't offer.

So get your drive from Warp Nine. And you'll get more than you bargained for.

PHOTON 20, 30, 40 AND NEW 80.

$569 $699 $949 $1349

A 21, 31, 41 or 81MB external SCSI hard drive. Fast, dependable, rock-solid performers. HFS and MFS compatible. Daisy chain up to seven SCSI devices. Photon 20, 30, 40 and 80 prices: For MacPlus—**$569.00, $699.00, $949.00, $1349.00.** *For 512k with our PlusPort—**$699.00, $829.00, $1099.00** and **$1479.00.**

MEMORY UPGRADES FOR YOUR 512 AND PLUS.

Simply clip on with no modifications necesssary. Fully compatible with all your software.

WarpRam—Upgrade for Mac 512k to 1024k RAM. For 512E with 128k ROM-**$179.00.** For 512 with 64k ROM-**$189.00.**

DataRam—2Mb upgrade for MacPlus. **$259.00**

MonsterRam 2.5—2.5 Mb upgrade for MacPlus. Uses 1 **megabit chips** and **SIMM technology.** Compatible with internal hard drives and large screens. Low power consumption. **$595.00**

MonsterRam 4—4Mb upgrade. Same technology as MonsterRam 2.5. **$1190.00**

THE PHASER 800.

$189.00

Whisper-quiet 800K double sided disk drive. Compatible with 128K, 512K, MacPlus and SE. No hardware or software modifications necessary. Distinguishes 400K and 800K diskettes and will read and write to them accordingly. Features push button and automatic electronic ejection. Cable included. All models. **$189.00**

OUR SOFTWARE PRODUCTS.

New! LaserSprint. The best Print Spooler for the LaserWriter. Never have to wait for the printer. Manages all jobs while you work. Observe all work in printing queue. All spool documents protected. Works with Pagemaker. Compare at $149.00 **Our price $59.95.**

FullBack. Hard disk backup program. Backs up text and graphics from hard disk to floppy disk. Volume, file-by-file, incremental. **$39.95.**

PrintSprint. A great Imagewriter spooler. **$29.95**

Special Bundle Prices. Buy any Warp products and save. FullBack/LaserSprint, **$79.95.** FullBack/PrintSprint, **$39.95.**

THE TRANSPORTER 20 AND THE PHOTON 2001.

$799.00 $1399.00

The Transporter is a stand alone 20Mb tape drive. The 2001 a single unit that combines a 20Mb hard drive/20Mb tape drive. The hard drive in the 2001 delivers all the speed, dependability, and flexibility of our Photon 20. Both tape drives will backup and restore data and applications safely onto cassette tapes. Tape drives feature volume, file-by-file and incremental backup. Can backup daily files in as little as three minutes. Transporter and 2001 prices: For MacPlus: **$799.00, $949.00** For 512k*: **$1399.00. and $1549.00.**

INTRODUCING THE MACINTOSH II 50 AND 80MB INTERNAL HARD DRIVES.

Macintosh II 50 **$949.00**

Macintosh II 80 **$1295.00**

Comes with everything you would need to mount into your Mac II in less than five minutes. Includes our 30-day-to-love-it warranty. Uses the quantum drive found in original Mac II's.

*The Warp Nine PlusPort adapter puts a MacPlus type SCSI port on the back of your Mac 512K. It is included with each 512K price. This adapter allows you to connect our SCSI hard drive and tape back up to your 512K and transfer data at the high speed that the MacPlus does. No modifications. No soldering. Just Clip on. Very simple to install.

Macintosh, Mac SE are trademarks of Apple Computer, Inc.

Please circle 178 on reader service card.

INTRODUCING THREE INTERNAL HARD DRIVES FOR THE MAC SE.

If you're planning to get a Mac SE, buy it with dual 800k floppies. Then order one of our 20, 30 or 45Mb internal hard drives and install it in place of one of the 800k drives. This gives you a floppy and a hard drive for hundreds less than you'd pay with Apple. And it's very simple to do.

Just remove the 4 screws that hold the 800k in place and replace it with our drive using the same screw holes. In 30 minutes you're done. Plus we'll send you an easy-to-follow manual and a toll-free technical support number should you have any questions.

What's more, our hard drives come with three features that Apple doesn't offer. Ours have 4 shock mounts to absorb the bumps and grinds of everyday usage. You can easily turn termination on or off if you need to chain hard drives or tape drives. And you can quickly change SCSI address to add another hard drive or tape backup.

P20i (20Mb)–**$499.00****

P30i (30Mb)–**$649.00****

P45i (45Mb)–**$899.00****

***This price includes a rebate of $100 if you return the 800k floppy drive to us in our pre-supplied box. P20i, P30i, and P45i without rebate $599.00, $749.00 and $999.00 respectively.*

EASY TO ORDER. FAST DELIVERY.

1-800-654-5294

1-800-328-6795 ext.433

In MN, call collect **(612) 426-9769.** We accept Visa, MasterCard, prepaid or C.O.D. orders.

MasterCard VISA

WARP NINE ENGINEERING INC.

1751 W. County Road B. Suite 107, St. Paul, Minnesota 55113

MINIFINDERS

Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the* MacUser *editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). CP? indicates that we don't know. If a product has been reviewed or QuickClicked in* MacUser*, the date of the review is shown. Next time you have to find products you can count on, count on* MacUser*!

MINIFINDER INDEX

BUSINESS ACCOUNTING 186
COMMUNICATIONS 192
DATA BASES 187
DESK MANAGERS 201
EDUCATION 208
ENTERTAINMENT 209
GRAPHICS & DESIGN 187
HARDWARE & ACCESSORIES 218
INTEGRATED SOFTWARE 186
LANGUAGES 206
MUSIC 217
NUMBER CRUNCHING 187
ORGANIZATIONAL TOOLS 198
PERSONAL FINANCE 186
UTILITIES 204
WORD PROCESSORS 195

INTEGRATED SOFTWARE

Crunch is an icon-driven relational spreadsheet that features ★★★★ versatile charting and data base capabilities. Strong financial logic, date and mathematical functions. Spreadsheets can be linked. The manual is clear and concisely written. Macros are not supported. $195. Paladin, 2895 Zanker Rd., San Jose, CA 95134. CP (Jan 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has ★★★★★ 256-column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Prem)

Jazz provides well integrated modules for word processing, graphs, ★★★★ worksheets, data bases and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word ★★★★½ processing, data base, spreadsheet and telecommunications functions. The telecommunications module includes background up- and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86)

Quartet is an integrated program that works on a 128K Mac, built ★★★★ around a powerful spreadsheet with a full range of functions. It can also be used as a data base and provides good quality charts from spreadsheet data. Documentation is adequate, but not too well organized. $49.95. Haba Systems, 6711 Valjean Ave., Van Nuys, CA 91406. CP (Jul 86)

BUSINESS ACCOUNTING

Accountant, Inc. V2.0 integrates accounts payable, accounts ★★★ receivable, general ledger and inventory modules in one application. Prints checks, purchase orders, invoices, customized reports. Bare bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. $299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct 87)

Back to Basics Accounting is a powerful double-entry accounting ★★★★ software package for the small business user with GL, AR and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy to use system. Six journals, ★★★★ AR, AP, Payroll and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

CheckMark is a Ledger with five preset journals: Cash Disburse- ★★★★ ments, Receipts, General, Sales and Purchases. Menus and data entry are very straightforward. Flexible summary reports are built-in, but customer and vendor information is very minimal. $295. CheckMark Software, PO Box 860, Fort Collins, CO 80522. CP (Dec 85)

Insight is a high-powered accounting program for the small to ★★★★½ medium size business. At present, three modules are available: Accounts Receivable, Payables and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 86)

Rags to Riches integrated accounting modules (General Ledger and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Version 3.0 now provides detailed, flexible report options. Very easy to use, but it can be confusing with several windows on-screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec 85)

Rags to Riches Professional Billing tracks and bills profession- ★★★★ al services. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. Requires 512K+, printer. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined ★★★★ set-up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each; and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85)

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a ★★★ good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

MacInTax is an excellent tool for preparing tax forms. Intuitive, ★★★★★ easy to use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $99 federal; $45 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87)

MacMoney is a complete and easy to use personal financial ★★★★½ system. Intuitive data entry. Integrates with *MacInTax.*

Requires 512K+. $74.95. Survivor Software, 11222 La Cienega Blvd., Inglewood, CA 90304. NCP (May 87)

Market Pro is a comprehensive portfolio management program for ★★★★ the generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

DATA BASES

Business Filevision is a masterpiece of Macintosh programming, ★★★★ the only true graphic data base on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Telos Software, 3420 Ocean Park Blvd, Santa Monica, CA 90405. NCP (Feb 86)

Double Helix is an environment to generate custom applications ★★★★ built around a data base-type framework. Contains enhancements to *Helix* 2.0. Includes custom menus, sub form windows, password protection and a universal dump and load parser. Ability to store pictures as data fields. $495. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Oct 86)

File is a flexible data manager. Creates files for a variety of data, ★★★★ including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

FileMaker Plus retains features of *FileMaker* and reads *FileMaker* ★★★★★ data, also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. $295. Requires 512K+. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Nov 86)

Helix is a relational data base that makes extensive use of icons. ★★★★ Setup is easy due to adherence to the Mac interface. The manual is clear, thorough and well-indexed. Complicated for simple data base applications, excellent where a relational power is needed. Requires 512K+ and external drive. $395. Odesta, 4084 Commercial Blvd., Northbrook, IL 60062. NCP (Mar 86)

MacDewey! (version 2.5) is a cataloging program featuring the ★★★ Dewey Decimal Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. $79.95. Mousetrap Software, 336 Coleman Dr., Monroeville, PA 15146. NCP

MacRelax is a relational list manager that stores data in a column ★★ format. Files can be related by sharing a common field. Flexible design for reports. Screen display is sometimes strange. Easy to use but not obvious to learn. $59.95. 512K required. Arrays, 6711 Valjean Ave., Van Nuys, CA 91406. NCP (Jan 87)

Omnis 3 is a power data base, featuring concurrent multiple file ★★★★ management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments including user-defined menus, commands and dialogs. $495. Blyth, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar 86)

OverVUE is a power-packed relational data base that has extensive ★★★★½ sorting, summarizing and report generation capacity. Has macros and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85)

Professional Bibliographic System is a specialized data base ★★★★ storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

Record Holder is a flexible, easy-to-use form-oriented data ★★★ manager. Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074 NCP (Apr 86)

Reflex For The Mac is a flexible relational data base. Excellent ★★★★½ report generator gives full control over appearance, style of output. Requires 512K+, second drive or hard disk. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86)

Writer's Workshop maintains orderly records for writers. It can ★★★½ track manuscripts, income and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

DesignScope is a construction kit for digital and analog circuits. ★★★★ Up to 254 components can be utilized in a single circuit, and the equivalent of a dual trace oscilloscope plots output in real-time. Good for testing circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP Nov 86)

MacCalc is a fast, competent, full-featured spreadsheet with ★★★★ impressive built-in functions, font control, on-line help, ability to expand columns and rows and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. Cell names, printing power make *MacCalc* a very flexible pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86)

MacSpin is a unique and powerful graphic data analysis program. ★★★★ Handles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D^2 Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 86)

Mindsight is a professional level decision support and business ★★★★ planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and easy to use. Requires 512K+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766. CP (Dec 86)

Multiplan, the first Mac product from someone other than Apple, ★★★½ is beginning to show age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated ★★★★ scheduling, statistics and graphics. It has solid spreadsheet, calendar and data base functions, and reports can be customized using other software. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. SMS, 651 River Oaks Parkway, San Jose, CA 95134. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with ★★★★★ tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast and accurate. Extremely wide range of analyses possible. Requires a minimum of 512K of RAM & 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

StatWorks is a general-purpose statistics package that is both ★★★★ powerful and easy to use. Handles all standard tests and procedures. Single variable and multivariate statistics are supported. $125. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 86)

Trapeze is a powerful spreadsheet program that functions through ★★½ use of blocks. Blocks can contain the usual spreadsheet-type cells, rows or columns, text, pictures and any type of special graphics. Includes financial, conversion and transcendental functions. $295. Data Tailor, 1300 S. University Dr., Fort Worth, TX 76107. NCP (Jun 87)

GRAPHICS & DESIGN

CalendarMaker creates monthly calendars in a variety of formats. ★★★★½ Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available.

THE SAVING ZONE Macintosh

WE CARRY OVER 1200 PRODUCTS FOR THE MAC. IF YOU DON'T SEE WHAT YOU NEED, GIVE US A CALL!!

Accessories

Beck Tech
- Fanny Mac 62.00

Ergotron
- Mouse Cleaner 360° 12.50

Innovative Technologies
- Directory holds 32 disks 19.00
- Easel holds 20 disks 13.00
- Library holds 80 disks 27.00

Kalmor Designs
Teakwood Disk Cabinets
- Holds 45 Disks 20.00
- Holds 90 Disks 30.00

Kensington Microware
- Mac Disk Drive Clean Kit 19.40
- System Saver 68.00

MacPacks
Colors in Wine, Blue, Grey
- ImageWriter I & II Bags 48.00
- Mac Plus Bag 65.00

Magna
- MacStation II 75.00
  Save space by putting your printer on top of your Mac.

Saving Zone
- 6 Out. Surge Noise Protect. 24.50
- Custom cables 11.00-35.00
- ImageWriter Ribbons 4.50
- Mouse Mat 6.50

Sensible Softworks
Bags come in Gray, Navy & Wine..
- ImageWriter Bag **39.95
- MacPlus Bag **49.75

Smith & Bellows
- Mahog. Chest 96 disks 27.00

Sony
- Double Sided Disks 10 pack 18.00
- Double Sided (Bulk) ..... each 1.39
- Single Sided Disks 10 pack 13.75
- Single Sided (Bulk) ..... each 1.18

Business/Personal

Aegis
- Doug Clapp Word Tools 48.00

ALP S ystems
- Mac Proof V2.0 ..... 129.00

Ann Arbor Softworks
- Full Write ..... CALL

Blyth Software
- Omnis 3+ 297.00
- Multi User Omnis 3+ For all networking systems ..... CALL

Borland
- Reflex 69.00
- Turbo Pascal 69.00

Bravo
- MacCalc 83.00

Brøderbund
- Video works II ..... CALL

Compuserve
- Starter Kit 25.00

Cricket Software
- Cricket Graph 124.00
- Stat Works 77.00

Data Viz
- Mac Link Plus 134.50

Digital Etc. Software
- Turbo Maccountant 270.25

Electronic Arts
- Thunder! 37.74

Forethought
- Filemaker Plus 195.00
- Power Point 250.00

Legisoft/Nolo Press
- Will Writer 28.00

Living Video Text
- More 165.00

Lundeen & Associates
- Works Plus Spell **41.25

Meta
- Design 150.00

Micro Planning Software
- Micro Planner + ... 298.00

Microsoft
- Excel 224.00
- Word 239.00
- Works 189.00

Microspot
- Mac Plot 3.0 Professional 299.25
- Mac Plot 3.0 Standard 149.25

Monogram
- Dollars & Sense 86.22
- Forecast 40.22

Owl
- Guide 78.50
- Guide Envelope 111.00

Peripherals, Supplies, & Computers
- Versa Term 75.00
- Versa Term Pro 215.75

Personal Bibliographic
- Biblio-Link (BRS) 133.75
- Biblio-Link (Dialogue) 133.75
- Biblio-Link (Medlars) 133.75
- Prof. Bibliographic Sys 209.00

Rubicon Publishing
- Combination Pack 59.95
- Dinner at Eight 39.00

Simon & Schuster
- Typing Tutor III 34.47

Softsync
- Accountant Inc. **178.00

Software Ventures
- Microphone V1.1 ..... 112.75

Survivor
- Mac Money 44.98

T-Maker
- Write Now 118.00

Thunder Ware
- Thunder Scan V4.0 ..... 199.95

Working Software
- Spellswell 45.00

Creative Education

Davidson & Associates
- Math Blaster 28.50
- Speed Reader II 40.22

First Byte
- Kid Talk 32.00
- SmoothTalker 32.00
- Speller Bee 32.00

Great Wave Software
- Timemaster 24.25
- Loc 30.00
- Kids Time 30.00

Mindscape
- S.A.T./Perfect Score 47.00

Unicorn Software
- Futura or Utopia 25.00
- Fraction Action or Math Wzrd 27.00
- Decimal Dungeon 27.00
- Read A Rama 35.00

Games

Accolade
- Hardball 28.00

Activision
- Shanghai 28.50

Avlon Hill
- Mac Pro Football 32.75

Brøderbund
- Ancient Art of War 28.00
- Lode Runner 22.97

Bullseye
- Ferrari Grand Prix 32.00
- Fokker Triplane 35.00

Electronic Arts
- ChessMaster 2000 ..... 33.00
- Ogre 28.50

Epyx
- Sub Battle 26.75
- Winter Games 23.00

Firebird
- The Pawn 27.00

Henderson & Associates
- Real Poker 27.00

Infinity
- Grand Slam Tennis 28.00

Microsoft
- Flight Simulator 32.00

Mindscape
- Balance of Power 31.25
- Deja Vu 31.25
- Shadowgate 31.75
- Uninvited 31.75

PBI Software
- Strategic Conquest + Multi User Version 35.00

Practical Computer Applications
- Mac Golf 36.00
- Mac Courses 32.00
- Mac Racquetball 35.75

Qware
- Orbquest 32.00

Scorpio Systems
- Professor Craps 31.00

Sierra On-Line
- Kings Quest I 31.25
- Kings Quest II 31.25

Silicon Beach Software
- Dark Castle 30.00
- Enchanted Sceptors 23.25
- World Builder 48.00

Sir Tech
- Wizardry 34.47

Spectrum Holobyte
- Gato 26.00
- Orbiter 26.00

XOR
- NFL Challenge 75.00

Graphics & Design

Altsys
- Fontastic+ 48.25
- Fontographer 237.20

Berkeley System Design
- Stepping Out 56.95

Brøderbund
- Print Shop 50.00
- Toy Shop 41.24

CasadyWare
- Fluent Fonts 30.25
- Laser Fonts Vol 1 - 15 each 42.30

Century Software Laser Fonts
Symbols, Congo, Mainistee, Micro-fonts, Neosho, Shadow Effects, Spokane, Styx, Thames, Trent, Willamette, Technical or Business 22.00

Compucraft
- Full Library 120.00
- Individual Disks 21.00

Computer Shoppe
- Mac Plot 2 (Draft) 250.00

Cricket Software
- Cricket Draw 177.00

Diehl Graphsoft, Inc.
- MiniCad **398.75

Dubl Click Software
- Wet Paint Vol 1 or 2 ..... each 23.00
- Wet Paint Vol 1 & 2 ..... 35.00
- World Class Fonts 1 or 2 ..... each 23.00
- World Class Fonts 1 & 2 ..... 35.00

Foundation
- Comic Strip Factory 56.25

Innovative Data Design
- MacDraft 161.40

Letraset
- ReadySetGo V4.0 ..... CALL

Miles Computing
- Mac the Ripper 28.00

Mindscape
- Graphic Works 1.1 ..... 59.98

Silicon Beach Software
- Accessory Pack #1 ..... 23.00
- Silicon Press 46.00
- Super 3D ..... CALL
- SuperPaint 58.00

Softstyle
- Colormate 54.75

Solutions
- Glue 39.00
- Smartscrap & Clipper 39.00

Symmetry
- Picture Base V1.2 ..... 41.95

T-Maker
- Click Art Business Image 28.75

The Saving Zone Is Networked On Dupont Fiber Optics

Software & Hardware

Click Art Effects 28.75
Click Art Letters 1 or 2 ..... 28.75
Click Art Publications 28.75
Click Art Laserletters
Bombay 47.75
Plymouth 47.75
Seville 47.75
Target Software
Scoop ..... CALL
Williams & Macias
My Disklabeler B&W 29.00
My Disklabeler Color 34.50
My Disklabeler Laser 36.25

Hardware

Abaton
Multi-Talk 595.00
AST Research
AST 2000 20 Meg HD/Tape 1,519.00
AST 4000 74Meg HD/Tape 3,998.00
TurboLaser/PS ..... CALL
TurboScan ..... CALL
Bizcomp
1200 Baud Modem 299.00
2400 Baud Modem 399.00
C-Enterprises
AB Box 512K 28.00
AB Box Mac+ & SE 48.00
ABCD Box 512K 48.00
ABCD Box Mac+ & SE 62.00
Capetronic
ADC 1200 Modem 135.00
ADC 2400 Baud 299.00
QT 1200 Baud 98.00
Cauzin
Strip Reader 185.00
CMS
CMS MacStacks:
20 Meg SCSI External HD 585.00
43 Meg SCSI External HD 975.00
80 Meg SCSI External HD 1,395.00
CMS Drives
140Meg SCSI Ext HD 2,545.00
240Meg SCSI Ext HD 3,545.00
320 Meg SCSI Ext HD 4,645.00
Pro 40-SE/II Internal HD ** 1,195.00
Dove
512K to 1 Meg/128K Roms 170.00
512K to 1 Meg w/SCSI Port 260.00
512K to 2 Meg/128K Roms 523.00
512K to 2 Meg w/SCSI Port 610.00
Plus 2 Meg (Mac+ UpGrade) 348.00
Plus 4 Meg (Mac+ UpGr) 1,700.00
Farallon
Mac 512K & LW Phonenet 49.00
Mac Plus Phonenet 49.00
Phonenet to Appletalk Adapter 8.00
Hayes
Interbridge 650.00
Smart Modem 1200 ..... 400.00
Smart Modem 2400 ..... 629.00
Transit 1000/512K 410.00
Iomega
Bernoulli Boxes
10 Meg SCSI Single 979.00
10 Meg SCSI Dual 1,509.00
20 Meg SCSI Single 1,289.00
20 Meg SCSI Dual 1,989.00
Koala
Mac Kat 135.67
Mac Vision 218.75

The Zone Goes Hypertext!

Win a 45 Meg MACBOTTOM hard drive! Go exploring with our **Graphic Space Adventure**. Learn about **hundreds** of great Mac products as you discover **Hypertext**, & the Saving Zone Product Guide, with just a click of your mouse. **Constantly** up-to-date, with the latest products.

Call Now To Order!.....Just $5.00

Kraft
Joystick 45.00
Lodown
MS 300 Scanner 1,525.00
Micrographic Images
Megascreen Plus .....
Megascreen 2 ..... 1,745.00
Microtek
MS 300 Scanner 2,095.80
New Image Technology
Laser Magic 43.25
MacScan LS-300 ..... 1,549.00
Magic Camera 185.50
Magic Video Digitizer 275.00
Nuvotech
512K & LaserWriter 30.00
Easy Net: Mac+, SE, & II 30.00
PCPC
MacBottom 21 Meg SCSI 859.00
With 1200 Baud Modem 989.00
MacBottom 45 Meg SCSI .. ** 1,288.00
With 1200 Baud Modem 1,418.00
Relax Technologies
Hard20+ w/Master 735.00
Mac Control 68.00
Mac Mate 20 Meg SCSI 700.00
Saving Zone
800K Disk Drive w/LED light .195.00
Softstyle
MacEnhancer 189.95
Sony
13" Color Multiscan Monitor for the Mac II 785.00
U.S. Robotic Modems
1200 Baud 248.00
2400 Baud 399.00
9600 HST 855.00

Languages

Mainstay
VIP (Vis'l Interactive Prgmg) ... 85.75
Manx
C Aztec C68K Comm. 425.00
C Aztec C68K Developer 250.00
C Aztec C68K Personal 165.00
Data Base w/ Source 330.00
Think Technologies
Light Speed-C 125.00
Light Speed Pascal 97.50
TML Systems
Data Base Tool Kit 62.50
Pascal 69.00
Source Code Library 59.00
Zedcor Inc
Z Basic 70.00

Music

Electronic Arts
Deluxe Music Const Set 69.00
Great Wave Software
Concert Ware + ... 39.95
Concert Ware + Midi 79.75
Music Vol 1-5 each 9.00
Hayden
Music Works 45.97
Kette Group
Stereo System 200 ..... 70.00
Studio Session 56.25
Mark of the Unicorn
Professional Composer 395.00
Professional Performer 224.00
Professional Performer V2.0 .. 324.00

Utilities

Affinity
Tempo 60.00
Alsoft
Disk Express 27.00
Mac Express ..... CALL
Prolink 28.25
Borland
Sidekick 2.0 ..... 62.00
Central Point Software
Copy II Mac 23.00
Cortland
Topdesk 36.00
Electronic Arts
Mac Battery Pak 31.75
FWB Software
Hard Disk Back Up 41.00
Hard Disk Partition 36.00
Hard Disk Util 55.00
Imagine Software
Smart Alarms 38.75
Smart Alarms Multi-User 90.00
MacMaster
Fedit+ 28.00
Mainstay
Flashback 41.21
Macflow 85.95
Mac Spool 34.25
Micetro 65.75
Turbo Down Load 27.00
Type Now 27.00
Micro Analyst
MacZap 41.50
PBI Software
Hard Disk Backup 31.00
HFS Locator + ... 23.00
PCPC
HFS Backup 28.75
Softview
Mac In Use 28.00
Softstyle
Epstart 26.00
Jet Start 26.00
Laser Start w/ cable 57.00
Plotstart w/ cable 75.00
Printworks 43.25
Super Mac Software
Laser Spool 1-5 Users 245.00
Network Disk Fit ..... CALL
Sentinel ..... CALL
Super Laser Spool 89.75
Super Spool Imagewriter 44.96
Think Technologies
Inbox Personal Connection 93.75
Inbox Starter Kit 262.50
Laser Speed 74.25

Specials

CMS
Pro 40 Internal (SE) or
Pro 40 Intrnl (Mac II) ... each 1,195.00
Diehl-Graphsoft
Minicad 398.75
Lundeen & Associates
Works Plus Spell 41.25
PCPC
MacBottom 45 Meg HD 1,288.00
Practical Computer Applications
Mac Racquetball 35.75
Sensible Softworks
MacPlus Bag 49.75
Softsync
Accountant Inc. 178.00

ORDERING INFORMATION

We accept VISA & MASTERCARD. No surcharge added. AMERICAN EXPRESS add 2.5%. To order by Mail, send one of the following: cashiers check, money order, credit card#, or check. **Personal and company checks under $1,000 clear immediately.** Please allow 10 days for personal and company checks over $1,000 to clear. **Fortune 1000 and Governmental checks clear immediately.** Call to obtain correct shipping cost. If we must ship a partial order, we never charge freight on the shipments that complete the order.
No Sales Tax.
Please include a day time phone number. WA residents add 8.1% sales tax.
120 day limited warranty on all products.*
Shipping: Software only, standard in UPS Ground service $3.00 minimum charge, 2nd day Air and Overnight Air available upon request. All US postal sent insured, APO/FPO add 3% ($5.00 min.), Alaska or Hawaii add 6% ($10.00 min), Canada add 12% ($15.00 min), Foreign add 20% ($30.00 min).
Hardware: Call for shipping charge.
All prices subject to change without notice. All items subject to availability.
Ad published for your convenience only.
*Software and hardware is subject to manufacturers warranty. Defective items will be replaced immediately with like item. Due to Federal regulations, all opened software sales are final. Unopened software ordered by mistake is subject to a 20% restocking fee. Defective hardware replaced or repaired at our discretion. All returns must have an authorization number, call 206-883-1975.

BETTER BUSINESS BUREAU PLEDGED TO ARBITRATE WE ARE COMMITTED

AMERICAN EXPRESS 3712 950006

MasterCard

VISA

7102 180th Ave. N.E., Bldg. A107, Redmond, WA 98052

CALL NOW! SAVE UP TO 60% OFF RETAIL PRICES!

Monday Through Friday, 6AM To 8PM PST. Saturday, 6AM To 6PM PST
Our Customer Service Line Is Open Monday Through Friday From 8:00 AM To 5:00 PM PST

(TOLL FREE) FOR ORDERS ONLY
1-800-248-0800

(TOLL FREE) IN WA STATE
1-800-243-4200

FOR INFO OR CUSTOMER SERVICE
1-(206) 883-1975

MINIFINDERS

$30. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Dec 86)

Chart can easily create area, bar, column, line, pie, scatter and ♦♦♦½ combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

ClickArt Special Effects is a *MacPaint* enhancement desk ♦♦♦½ accessory. Allows the user to distort, stretch, rotate and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print *FullPaint*, *MacPaint*, *MacDraw* and ♦♦♦ *MacDraft* documents in color using the ImageWriter II or ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

Cricket Draw is an object-oriented drawing program that will ♦♦♦♦♦ produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects are just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 87)

Cricket Graph easily generates 12 graph types. Multiple windows ♦♦♦♦♦ can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter and plotter compatible. $195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86)

Easy3D is a three-dimensional, solid modeling masterpiece. Four ♦♦♦♦ variable light sources, powerful sculpting tools and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EZ Draft is a high-level CAD application. Does things usually only ♦♦♦ found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different ♦♦♦♦ items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223779, Carmel, CA 93922. NCP

Fontastic is the best font editor now available for the Mac. ♦♦♦♦½ Features a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles (italic, bold, etc.). $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The ♦♦♦♦½ fonts created have 300 bits per inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FullPaint is an expanded version of *MacPaint*. Features include ♦♦♦♦♦ full-screen drawing, multiple documents open simultaneously, brush editing, movable tool palettes, special text effects and much more. It fills the gaps left by *MacPaint*. $99.95. Ann Arbor Softworks, 2393 Teller Rd., Newbury Park, CA 91320. NCP (Jun 86)

GraphicWorks 1.1 is a powerful drawing and painting program ♦♦♦♦ that creates high-resolution bit-maps. Easels contain graphics, balloons hold text and both reside on panels. Graphic primitives are now a separate tool. $99.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics with- ♦♦½ out removing them from their original documents. Indexed graphics are retrieved via the *Graphidex* DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (*Paint* format) images but the design is questionable and the execution imperfect. Requires 512K. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program ♦♦♦ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage point are easily modified. $49. FolkStone Design, Inc., PO Box 86982, North Vancouver, BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and ♦♦♦♦½ powerful drawing technique. Program uses templates for precise and detailed art work. Requires 512K+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered. (Jul 87)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip ♦♦♦♦½ art. Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $79.95 each volume; $149.95 set. Enzan Hoshigumi, 310 Still River Rd., PO Box 131, Still River, MA 01467. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download ♦♦♦♦ them to their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

The Mac Art Dept. is a collection of over 150 graphic images ♦♦♦♦ ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1 Gulf & Western Plaza, New York, NY 10023. NCP (Mar 86)

Mac-a-Mug is an Identikit type program for creating faces from ♦♦♦½ facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 512K+ Mac required. $59.95. Shaherazam, PO Box 26731, Milwaukee, WI 53226. CP (Jul 86)

MacDraft is an object-oriented graphics program. It sports ad- ♦♦♦♦ vanced features such as variable scaling, single degree rotation, complex arcs and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. $239. Innovative Data Design, 2280 Bates Ave., Ste. A, Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can ♦♦♦♦½ be used to design forms, create presentation materials and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Nov 85)

MacModel is an economical 3D package with shading. Somewhat ♦♦♦ sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint is the graphics program that started a whole new genre. ♦♦♦♦ Still the best freehand graphics tool. Version 1.5 supports 512K+ Macs and the LaserWriter. Multiple tools, patterns and features too numerous to describe. A work of art for artists. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Mac3D 2.0 is a feature-laden 3D program with a *MacDraw*-like ♦♦♦♦ interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. $249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan 87)

MapMaker produces maps and analyses of related geographical ♦♦♦♦½ data. Additional data disks available. Documentation could be better. Requires 512K; second drive recommended. $295. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 87)

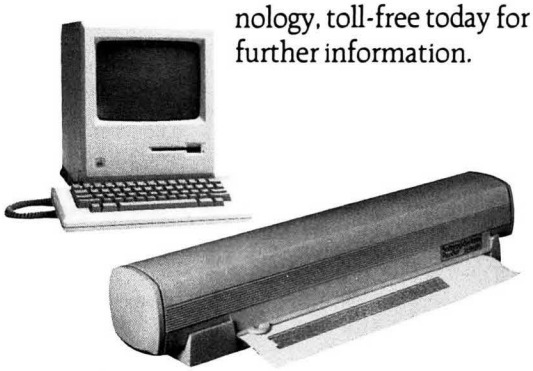
MGMS: Professional CAD for Macintosh offers more than 200 ♦♦♦½ functions. Very complete, capable program. Powerful tools like Groups, Dimension, Libraries, etc. are standard. Some-

MAC Support!

Software that enhances the value of your Macintosh, from the SOFTSTRIP® System.

Now you can build a library of your favorite programs, fonts, desktop publishing artwork and games, using the SOFTSTRIP optical scanning system. With the SOFTSTRIP reader, you can input this Toggle Macros utility program in less than 5 minutes, without errors.

The complete system offers you turn-key MAC support that is surprizingly affordable. Call Cauzin, the creators of SOFTSTRIP technology, toll-free today for further information.

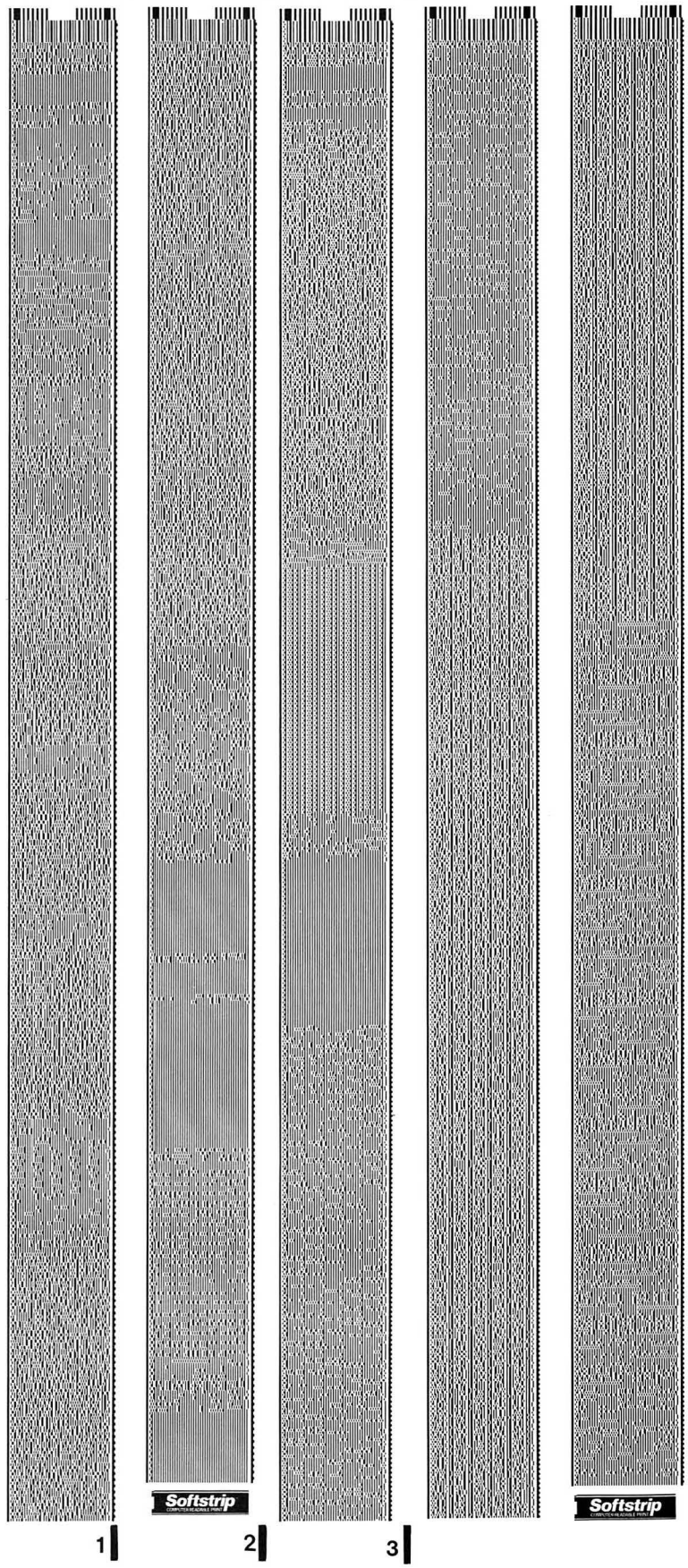


TOGGLE MACROS, from the Excellent Exchange, is a series of **Microsoft®** Excel macros that will protect your document or cells, display row and column headings, switch between the first and last cells, delete a print area, and set/remove page breaks. There are also others which will print your text in either bold or italics, and one that creates an outline border. We've included a text file which explains how these toggles work and shows you the code used to create each one.

If you're interested in learning more about the Excellent Exchange's extensive collection of Excel macros and programs, or if you're an Excel author, write Heizer Software, 1941 Oak Park Blvd., Suite 30, Pleasant Hill, CA 94523.

Softstrip
COMPUTER READABLE PRINT

Cauzin Systems
835 South Main Street
Waterbury, CT 06706
1-800-533-7323
(In CT 203-573-0150)



Please circle 41 on reader service card.

MINIFINDERS

times confusing to follow—designed for experienced, professional CAD user, not the novice. Full plotter support. Good tech support. Requires 512K+. $799. Micro CAD/CAM, 5910 Noble, Van Nuys, CA 91411. CP (Jun 87)

MiniCad V3.0 is a pro level CAD package. Vast array of features, many accessible only through command/shift/option key combinations. Works in 2-D or 3-D with easy transition from one to the other. *MacDraw*-like interface makes it easy to learn and use. Requires 512K+. Diehl Graphsoft, Inc., 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct 87)

MockPackage+ is a set of extremely powerful DAs. Includes a text editor, text printer (supports LaserWriter), charter, terminal and EZmenus. HFS compatible. $35. CE Software, 801-73rd St., Des Moines, IA 50312. NCP (Mar 87)

PageMaker uses a graphics studio metaphor to make this layout program a natural for pasteup artists. Version 2.0 adds automatic kerning and hyphenation. Excellent documentation. Could use a global search and replace for design elements. $495. Aldus Corp, 411 First Avenue South, Seattle, WA 98104. NCP (Oct 87)

Phoenix 3D is an economical 3D drawing package, with features that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase 1.2 is the updated version of the powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval $69.95. Symmetry Corp., 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87)

Portfolio: Designs for Newsletters provides over 20 templates for 2-page newsletters with pre-set columns, headlines, graphics and captions. Documentation provides excellent tutorial in page design. Includes DA called *Wyzzy* that optimizes screen fonts and copyfit. Requires 512K+; *PageMaker*. $79.95. Aldus Corp., 411 First Avenue South, Suite 200, Seattle, WA 98104. NCP (May 87)

The Print Shop makes it easy to create greeting cards, signs, banners and letterheads. Uses its own special graphics and can import *Paint* files. Hard disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Quark Xpress is a high end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. Copy protection impedes usefulness. $695. Quark, 2525 W. Evans, Denver, CO 80219. CP (Sep 87)

Ragtime is an "Integrated Page Processor" with text, graphics and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy to use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Apr 87)

Ready, Set, Go! 3 is the newest of the *Ready, Set, Go!* page layout programs. New version offers power word processing and excellent control for text and graphics placement. Slow printing with complex pages. $395. Letraset, USA, 40 Eisenhower Dr., Paramus, NJ 07652. NCP. (Jul 87)

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Space Edit is a 3-D CAD program. Display shows top, front, side and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 512K+. $625. Abvent, 9903 Santa Monica Blvd., Suite 268, Beverly Hills, CA 90212. CP. (Jul 87)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of *MacPaint* and *MacDraw* —and then some. Among the new features, LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $99. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87)

WetPaint consists of two 3-disk volumes of very high quality clip art. Also includes the *Art Roundup* DA, the best art browser-/editor yet. Volume 1 or 2, $39 each; both Volumes, $59. Available in *PictureBase* format for $15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the *Mac the Knife* fonts and a lot more, including 2 useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

COMMUNICATIONS

AppleShare is the long awaited file sharer from Apple. Software-based, *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87)

HomePak is a package consisting of *HomeTerm*, an excellent, simple telecommunications program with strong macro features; *HomeFind*, an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit*, a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sep 86)

InBox is an easy to use mail system. It's called up from a desk accessory. Has a very slick interface. Current version requires a dedicated Mac to run as storage for the mail. $350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87)

InTalk comes with its own communications command language able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample set up documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem)

InterMail is an electronic mail system that runs under AppleTalk. Supports file transfers across the mail system. Full on-line help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Interactive Network Technologies, 20 Amy Circle, Waban, MA 02168. NCP (May 87)

MacTerminal provides basic telecommunications and terminal emulation for the Mac user. Doesn't have macros nor any sort of auto redial/auto logon capability. Best for those needing faithful VT100 or IBM 3278 emulation—it is superb at those. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem)

Microphone is a high-powered terminal program that's easy enough for novices. Very powerful command language allows full automation of communications, if desired. $149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jul 86)

Red Ryder is a full-featured telecommunications program that supports MacBinary, Xmodem and Kermit. Remote service procedures, auto procedure writer and keyboard macros allow automation of many operations. It is shareware and a real bargain. $40. The FreeSoft Corp., 10828 Lacklink, St. Louis, MO 63114. NCP (Jul 86)

50% MORE STORAGE. IMAGINE WHAT IT'LL DO FOR THE MAC SE.

Get 30 or 45 meg storage with our internal drive upgrade.

Until now, there were only 2 ways to buy the new Mac SE.™ You could get it equipped with two 800K floppies. Or, with a floppy and a 20 meg internal drive. Those were your choices.

We thought that was a little limiting. What about all the storage hungry people out there? People who want to outrun, outsmart and outdo the competition? Well, here's your answer.

INTRODUCING INTERNAL HARD DRIVES FOR THE MAC SE. THE 300 SE AND 450 SE.

Before you buy your Mac SE, have your dealer replace one of its standard 800K drives with our 30 meg drive (300 SE). That gives you 50% more storage. 50% more, that's nothing to sneer at. And all it will cost you is $100 over the regular 20 meg SE price.* Or if you want more storage, have our 45 meg drive (450 SE) installed.

Our drives come with shock absorbing mounts to manage the hustle and bustle of everyday use. And if you need to chain hard drives or tape drives, you can easily turn termination on or off. Plus, changing SCSI address is as easy as a push of a button. (Apple doesn't offer any of these features.)

So if you're after the most storage a little money can buy, talk to a Mirror Tech dealer. And together, we'll make your Mac SE the best it can be.

FREE SOFTWARE. ANOTHER GREAT REASON TO UPGRADE.

If you choose to upgrade your Mac SE with our 30 or 45 meg drive, we'll give you THINK Technologies LaserSpeed™ (a $99 value) free.

Plus we'll throw in QuickPrint™ (a $79 value) and SafetyNet Personal backup software (a $150 value) too.

Of course, both of these drives are covered by our full-year warranty. So give your Apple dealer a call right away. Because when a deal's this good, the phone lines get busy real fast.

MIRROR TECHNOLOGIES Inc.

2209 Phelps Road, Hugo, Minnesota 55038 (612) 426-3276
Canada Distributor, Peripherals Plus Inc. (514) 849-5685

Macintosh SE is a trademark of Apple Computers, Inc. LaserSpeed is a trademark of THINK Technologies. *With rebate on 800K floppy.

Please circle 188 on reader service card.

NO MATTER HOW YOU USE YOUR MAC, DISCOVER HOW TO USE IT BETTER WITH

MacUser

A subscription to MacUser delivers the input and ideas to help you maximize the performance of your Mac—no matter how you use it!

Act today and SAVE 63% OFF the annual single-copy price. You'll begin monthly delivery of the most important add-on for your Mac—with in-depth product reviews and comparisons from the ONLY independent Mac testing laboratory, MacUser Labs, PLUS you'll find clearly written articles that will introduce you to new applications and products to optimize the overall performance of your system!

MacUser, the Macintosh Power Resource, written with you in mind—always current, on the-mark and the single most powerful accessory for the Macintosh!

For fast service, call 1-800-852-5200, or return the attached card today!

One year (12 issues) ONLY $19.97. SAVE 58%!

Two years (24 issues) ONLY $34.97. SAVE 63%!

Savings based on annual single-copy price of $47.40. Basic annual subscription price is $27.00.

MINIFINDERS

Smartcom II balances power and ease of use. Capable of ★★★★½ unattended operation and has a very powerful command language. Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jul 86)

Telescape is the power telecommunicator's terminal program. Can ★★★ be configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server that is designed to network computers with ★★★★½ different operating systems. The current system will support Macs, MS-DOS compatibles and UNIX. Access to files and subdirectories is transparent to the user, they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). Centram Systems West, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87)

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 ★★★★½ graphics terminal and Data General DG200 emulation. Supports Xmodem and MacTerminal Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several ★★★★½ special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite* ★★★ 4.5, ASCII or MDS documents. Differences in spelling, punctuation, formatting and wording are detected. Documents can be printed out with differences highlighted. $99. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (May 86)

Document Modeler can automate much of a professional office's ★★★★½ correspondence. Comes in two parts: *Template Maker* and *Document Maker*. Initial set-up requires time and is complex. $299.95. Legalware, 33 Young St., Toronto, Canada M5E 1S9. NCP (Mar 87)

Doug Clapp's Word Tools is a useful punctuation and style ★★★★ editing program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that allows you to create complex ★★★★★ mathematical equations from within an application. Equation manipulation has never been easier. $79.95. Allan Bonadio Associates, 1579 Delores St., San Francisco, CA 94110. NCP (Jul 87)

JustText is a professional level word processor and page makeup ★★★★½ program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. $195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

Kadmos Greek Font is a full character set of ancient Greek that ★★★½ prints on any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort.

Become a "Master of Space and Time"

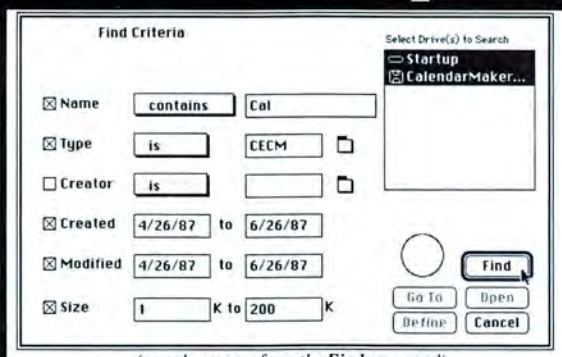
DiskTop unleashes the hidden speed in your Macintosh...and you!

"DiskTop 2.0 may be the best desk accessory ever written for the Macintosh" – MacNews, May '87

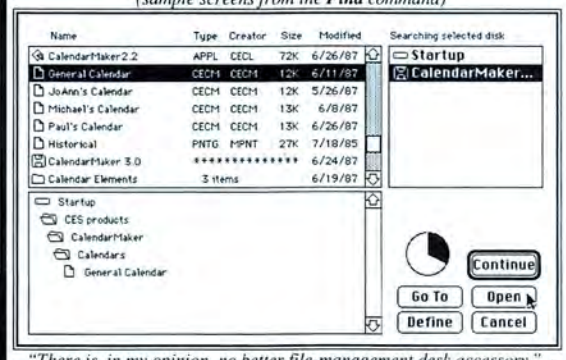
- DiskTop has been described as a "Portable Finder".
- Most powerful search/find capabilities existing on the Macintosh
- As easy to use as the Finder
- More capabilities than the Finder
- Works anytime
- As easy or as technical as you like!

Two FREE bonus programs: LaserStatus and Widgets.

$49.95
Satisfaction Guaranteed



*(sample screens from the **Find** command)*



"There is, in my opinion, no better file-management desk accessory." - MacWorld, August '87
4-1/2 Mice - MacUser, August '87 • Editor's Choice – MacWorld, July '87

DiskTop
New version 3.0

$49.95 plus $2 shipping
Visa and MasterCard accepted
...or see your local dealer

Also from CE Software:

CalendarMaker 3.0	$39.95
MacBILLBOARD	$35.00
MockPackage Plus	$35.00

CE Software
801 - 73rd Street
Des Moines, Iowa 50312

Orders: (800) 523-7638
Information: (515) 224-1995

Please circle 38 on reader service card.

MINIFINDERS

Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104 NCP (Oct 87)

Laser Author is a high-powered, technically oriented word processor. Good math setting capability. Has style sheets, word count and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective interactive checker. The dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. $59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct 86)

MacGAS is a DA spelling checker with both a small and extended dictionary. Its best point is the excellent thesaurus, provides antonyms & glossary. A slow checker. $99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct 86)

MacLightning is an interactive spelling checker in desk accessory form. Text can be checked on the fly or by selection. Works within many applications, and options include a thesaurus, medical and legal dictionary. $99.95. Target Software, 14206 Southwest 136th St., Miami, FL 33186. NCP (Oct 86)

MacProof is a grammar, style and spelling checker that's like having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. $195 for standalone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr 87)

Macspell+ (version 1.10) is a spelling checker that installs as a desk accessory. Works easily with *MacWrite* 4.5 and 2.2 and *Word*, but has some drawbacks. New version just available. Requires 512K+, two drives or hard disk. $99. Creighton Development, 16 Hughes St., Irvine, CA 92718. NCP

MacWrite is the basic Mac word processor. While it doesn't have every bell and whistle, it is more than adequate for most users. Features include global search and replace, page numbers indicated in the scroll bar and excellent LaserWriter compatibility. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

MindWrite is an outliner-based word processor of considerable power. Besides outlining, it allows multiple documents and multiple selections. Excellent if you like to outline your writing first. $295. MindWork Software, 100 Pacific St., Monterey, CA 93940. NCP (Mar 87)

QuickWord is a word processing accessory that adds sophisticated glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard format scripts. Starts with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

Spelling Champion is a fast and accurate batch-type spelling checker. Backup feature allows you to undo corrections in a paragraph. Works only with *MacWrite* 4.5. $39.95. Champion Software, 5201 South Hill Dr., Madison, WI 53705. NCP (Oct 86)

Spellswell is an effective and powerful standalone spelling checker. It has many advanced features such as capitalization and homonym checking and comes with a large, well-chosen dictionary. Very good dictionary, good value. $74.95. Working Software, Inc., 321 Alvarado, Ste. H, Monterey, CA 93940. NCP (May 86)

PLUG IN "POWERFUL" SAVINGS FOR YOUR MAC

Save up to 63% on your subscription to MacUser and plug into increased power for your Macintosh.

Every month you'll receive in-depth side-by-side product comparisons and benchmark test results of Mac hardware, software and peripherals from MacUser Labs, the publishing industry's only independent testing lab. Plus, you get proven power user tips and techniques, comprehensive coverage on business, professional and educational applications, AND hundreds of product reviews in every issue!

This is the monthly "Power-user resource for all Mac users," and it can be yours at *powerful savings:*

One year (12 issues) only $19.97 —Save 58%! The equivalent of 6 FREE issues!

Two years (24 issues) only $34.97 —Save 63%! The equivalent of 15 FREE issues!

Mail the attached coupon, or call 1-800-852-5200 Toll Free today!

MacUser P.O. Box 52461 Boulder, Colorado 80322-2461

Begin my subscription to MacUser for:

☐ One year (12 issues) for $19.97— I'm saving 58%!

☐ Two years (24 issues) for $34.97— I'm saving 63%!

Mr./Mrs./Ms._____
Please print

Company_____

Address_____

City_____ State_____ Zip_____

☐ Bill me later ☐ Payment enclosed

Savings based on single-copy price of $47.40. Please allow up to 60 days for delivery of first issue. Add $12 per year for postage in Canada and all other foreign countries. Basic annual subscription price is $27.00.

For Your Convenience

Why do more work than you have to? Microsoft® *Works* gave you word processing, spreadsheets, and a data base. But don't you still wish you had an "automatic time-saving device" to take care of the everyday, repetitious typing?

Get the WorksPlus Command program. With its pre-programmed commands, you can eliminate much of your repetitive typing. With the touch of a single Macintosh™ command key, you can

- Select a style rule
- Set up multi-column labels from a data base
- Generate a table of contents or an index
- Log on to a time-sharing service

and much more.

Once you see how easy it is to use, you can also use WorksPlus Command to create your own commands. You don't need to be a programmer. Simply record the keystrokes or mouse clicks and you have an "instant" command.

Of course, if you have a programming inclination, WorksPlus Command provides a full programming language for your convenience. Create your own complex macros to do your bidding at the touch of a key.

Put your time to your advantage instead of striking the same keys over

... and over
... and over.

(Suggested retail price is $99.95.)

Microsoft® is a registered trademark of Microsoft Corporation.
WorksPlus™ is a trademark of Lundeen & Associates
Macintosh™ is a trademark licensed to Apple Computer, Inc.

Lundeen & Associates
P.O. Box 30038
Oakland, CA 94604

Please circle 173 on reader service card.

MINIFINDERS

Thunder! is one of the best spelling checkers around. Features ★★★★★ Learned Words (a superb glossary) and statistics. A very fast DA, it works interactively and in selection mode. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 86)

Word 3.0 is the most feature laden word processor now available. ★★★★½ Has a spelling checker, hyphenation, some page layout, style sheets and more. Also has Microsoft's somewhat unusual view of what the Mac interface is. Requires 512K+ and 1200K+ of storage. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Mar 87)

WorksPlus Spell is a speedy spelling and hyphenation checker for ★★★★½ *Microsoft Works*. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. $59.95. Lundeen & Associates. PO Box 30038, Oakland, CA 94604. NCP (Oct 87)

WriteNow for the Macintosh has many of the features of ★★★★½ *MacWrite* and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has ★★★★½ practically all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. A must-have for those who do outlining. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

Calliope is a new type of outlining program. Chunks of information ★★★ are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for *MacWrite* editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

DecisionMap organizes data to facilitate decision making. Unique ★★★ weighting abilities make this a powerful tool. The decision analysis process is long and sometimes complex, but never difficult. $145. SoftStyle, 7192 Kalanianole Hwy., Honolulu, HI 96825. CP

Design is a powerful organizational tool. It goes beyond mere ★★★★ flowcharting. Complex, detailed program aimed at software pros. $200. Meta Software, 55 Wheeler St., Cambridge, MA 02138. NCP (Apr 87)

Guide allows you to "cross reference" from within a document ★★★★½ using hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics and other useful items. The word processing and formatting functions are limited. $135. OWL, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

MacProject allows a user to plan and track a project from ★★★ beginning to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 86)

MacSpec is a specification writing tool, a cross between word and ★★★ outline processors. Can automatically number and indent headings, and renumber everything when lines are moved. Text under headings is handled and formatted as though in a simple word processor. HFS-compatible. $199.95. LM Software, PO Box 93, Belmont, CA 94002. NCP (Oct 86)

Memorandum is the Mac equivalent of Post-It Notes. You can ★★★★½ attach a note to a specific area, such as a cell in a

Not since ham and cheese has integrating been so easy.

Busy desktop publishers are calling SuperGlue™ the easiest solution since the total meal in a sandwich. Now they can take full QuickDraw quality, multi-page Macintosh™ spreadsheets, charts, graphs and the like out of the program that created them. With the new desk accessory, you can access and copy from all these graphics while still in your word processor or page layout program.

If you use scrapbooks, your graphics can be placed automatically in scrapbook files or resized so you can paste them where you please.

You can even extract text or numerical data, change it to ASCII, and place it in another program.

If this whets your appetite, order SuperGlue™ today. It's guaranteed to perform as advertised or your money back.

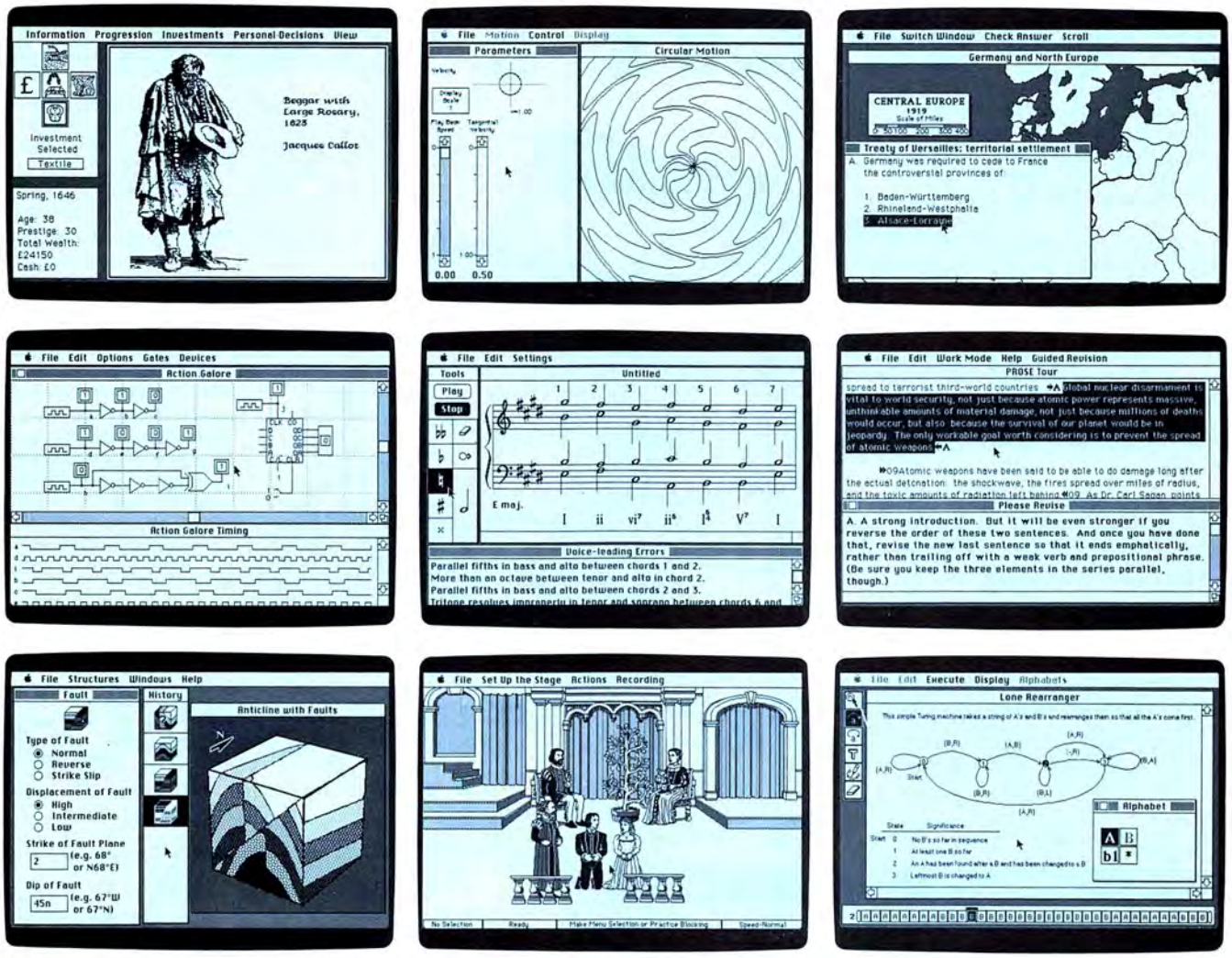
SuperGlue™ retails for $89.95 and is available from your dealer or Solutions International.

29 Main St., P.O. Box 989
Montpelier, VT 05602
802-229-9146

Super GLUE™

SuperGlue is a trademark of Solutions, Inc.
Macintosh is a trademark of Apple Computer Inc.
SuperGlue runs on any Macintosh larger than 512K.

Please circle 265 on reader service card.



Now teachers don't have to go strictly by the book.

For years, textbooks (and an occasional guest lecturer) were all that the faculty needed to implement their teaching plans.

But now that the computer age has reached college age, an entirely new course has opened up for professors: The Academic Courseware Exchange™, which has been developed by Kinko's Copies.

It's a way for faculty members to incorporate educational software for the Macintosh™ and Apple® II personal computers into their classrooms. At a cost to students that's comparable to textbook prices, from $8 to $40.

Academic Courseware Exchange software has been developed by faculty members for faculty members–to help them teach their chosen subject better. Be it history, chemistry, business, electrical engineering or hotel management. And each program is tested in real classrooms before it's ever offered to the faculty.

Becoming part of the Courseware Exchange is incredibly simple. Better yet, it's free.

Just call Kinko's at (800) 235-6919* for a complimentary copy of the Academic Courseware Exchange catalog. It describes over 100 software titles. And explains how professors can qualify to preview one program at no charge–before deciding if it should become part of their curriculum.

Rest assured, once you do decide to use a particular program, your students don't have to go out of their way to get it. Academic Courseware Exchange software is ordered through Kinko's Copies, at over 300 campus-close locations nationwide. Or, Kinko's will be more than happy to have your software delivered right to your school.

So call for your free catalog today.

If you believe in going strictly by the book, this is one book that could change your mind.

kinko's®
Great copies. Great people.

© 1987 Kinko's Service Corp. Kinko's is a registered trademark of Kinko's Graphics Corp. Academic Courseware Exchange is a trademark of Kinko's Service Corp. Apple is a registered trademark of Apple Computer Inc. Macintosh is a trademark of Apple Computer Inc. *In California, call 800 292 0640. Outside U.S., call 805 967 0892.

POWER TOOLS.

From Coral Software, the developer of the first full Common LISP for any microcomputer, three languages that bring symbolic programming to the rest of us: Allegro Common LISP, Coral LISP, and Object Logo.

LISP and Logo, two of the most advanced programming languages, are now available on the Macintosh in inexpensive, high- quality, implementations.

Allegro CL is the first and only implementation of the Common LISP standard for a microcomputer. It extends the Common LISP standard from mainframes to the Macintosh. It's an indispensable tool for AI research and application production.

Coral LISP and Object Logo offer ideal environments for education and for exploration into the field of Artificial Intelligence. They are already in use at the Apple Vivarium project.

Each of our languages offers:

• object-oriented programming system with multiple inheritance • fast incremental native-code compiler with dynamic linking • high-level Macintosh interface tools • advanced symbolic and list processing capabilities • advanced math package: bignums ratios and complex numbers • debugging tools, such as a source-code stepper and trace facility • multi-window integrated editor • interactive, low-level Macintosh Toolbox access • excellent documentation, with complete cross-referenced index and comprehensive examples

Additional features

Allegro Common LISP Full Common LISP • File compiler • Window-based inspector • Integrated, programmable editor • Modest memory requirements: 1MB RAM. No hard disk required. **Coral LISP** File compiler • Dialog objects • Full lexical closures • Dynamic variables **Object Logo** Turtle graphics with multiple, object-oriented turtles Macintalk objects • Apple Logo compatibility • MIDI support

Object Logo can be yours for only $79.95. Coral LISP will be available October 1 for an introductory price of $99.95. And Allegro CL can be yours for an unbelievably low introductory price of $399.95

Coral Software: Where Limitations are Left Behind

To order call or write: Coral Software, P.O. Box 307, Cambridge, MA 02142. • (800) 527-1027, in MA, (617) 547-2662.

Apple is a registered tademark of Apple Computer, Inc. Object Logo, Coral Lisp and Allegro Common Lisp are trademarks of Coral Software Corporation.

Coral SOFTWARE

Please circle 106 on reader service card.

T W O - P L A Y E R

SMASH HIT RACQUETBALL!

II

Human vs. Human Challenge via AppleTalk™ Modem or Direct Connection

ONLY **$39.95**

- Also includes single-player mode
- For Mac 512K, Plus, SE and II
- Not copy protected (We hear you!)

See your dealer or order now! Single-player version now for Mac II and still $19.95

PRIMERA SOFTWARE • 1-800-643-0800

650 Cragmont Ave., Berkeley, CA 94708 (415) 525-3000

Please circle 281 on reader service card.

Complete MIDI Recording Studio!

Save 25%

Compose, arrange and perform your own music on an Apple //e or Macintosh.

Package Includes:

Casio CZ 101 8-voice synthesizer keyboard with power adapter. Passport MIDI Interface,™ the industry standard for Apple //e or Macintosh. Master Tracks Pro,™ the world's most powerful MIDI recording software. Plus two free MIDI cables and free shipping!

Complete Package a $950 value, **NOW $699!**

Software and Interface Only... $399

Call 1-800-FOR-MIDI

(800-367-6434) 10-6 M-F 12-5 SAT

Future Music

(702) 826-6434
900 W. First
P.O. Box 1090
Reno, NV 89504
Mastercard VISA Accepted

PASSPORT
The Speed of Sound.™

Please circle 130 on reader service card.

MINIFINDERS

spreadsheet or a word in a word processor. Also produces timed notes. $99.95. Target Software, Inc., 14206 S.W. 136th St., Miami, FL 33186. NCP (Sep 87)

Micro Planner Plus is a great project management system. ★★★★½ Outstanding analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

MORE is an incredibly powerful outline processor with gobs of ★★★★★ great features: instant charts, math capabilities, multiple windows, font and style control, templates and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $295. Living Videotext, 117 Easy St., Mountain View, CA 94043. NCP (Jan 87)

PowerPoint is a comprehensive presentation creation tool. Han- ★★★★ dles 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Forethought, 250 Sobrante Way, Sunnyvale, CA 94086. NCP (Aug 87)

ThinkTank 512 is a very fast and intuitive organizational tool. Full ★★★½ keyboard control is possible. Can store and paste graphics into outlines. Slide show features allows high-quality presentations to be created. Good report formatting and printing capability. $195. Living Videotext, 117 Easy St., Mountain View, CA 94043. CP (Jan 86)

Voila! is a full-featured outliner in desk accessory format. Head- ★★★★ lines can be edited like normal text. Reads and writes text files, *Word, MacWrite, ThinkTank* and *MORE* documents. An excellent value. Requires 512K+. Mac XL not supported. $99.95. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Mar 87)

DESK MANAGERS

BatteryPak is a set of 9 handy desk accessories including ★★★★★ scientific and RPN calculators, a background text file printer and a 250-page note pad with search and phone dialing capabilities. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404 NCP (Dec 85)

Executive Office is a jack of all trades office application. Good ★★★½ data base, word processing, graphics and minispreadsheet. Available on 400 or 800K disks. $249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

Front Desk lets small businesses and offices easily keep track of ★★★ personnel schedules, activities and payments. The program can keep track of up to 15 employees, functioning as a day-, week- and month-at-a-glance calendar. $149.95. Layered, 85 Merrimac St., Boston, MA 02114. NCP (Dec 85)

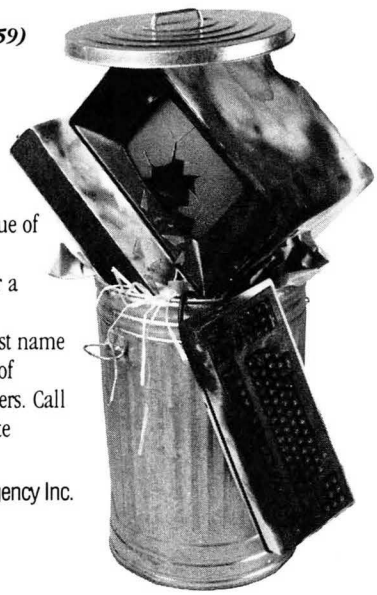
My Office lets you handle your files and papers in much the same ★★★★ way you did before you got a computer. Excellent use of graphic symbols. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools ★★★ that can be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial and statistical calculators and a file encryptor. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major ★★★★ new ones—*MacPlan*, (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Before this happens, call SAFEWARE

800/848-3469
(In Ohio, call 614/262-0559)



Protects your computer against theft, fire, power surges and other accidental losses. Insures your entire system for as little as $39 a year — depending on the value of your hardware, software, and media. Full replacement after a low $50 deductible.

We're SAFEWARE,® the first name in computer insurance. Tens of thousands of satisfied customers. Call toll-free for rates or immediate coverage.

SAFEWARE, The Insurance Agency Inc.
2929 N. High Street
P.O. Box 02211
Columbus, Ohio 43202

SAFEWARE

Please circle 285 on reader service card.

100 GAMES 25.00

It's not that we're charging too little... it's just that you've been paying too much.

PhrazeCraze, StuntCopter, Cairo ShootOut, Klondike, Poker, CryptoSolve, Talking Moose, Crabs, Brickles, MacMatch, plus 90 more! All ready to run on your Macintosh™ computer. You could easily spend a small fortune obtaining these same quality Public Domain and Shareware games elsewhere, but we'll send all 100 of them to you on 4 double sided disks for only $25.00, or 8 single sided disks for only $27.00 (plus $3.00 postage and handling). Sound too good to be true? It isn't. We are determined to provide you with the very best in Public Domain and Shareware software at the most reasonable prices. We stock the latest versions of over 2500 different utilities, games, artwork, DA's, fonts, educational, and business applications. At only $3.50 per single sided disk, or $6.50 per double sided disk. No minimum on cash purchases, no membership fees ever! Just great software at honest prices. Send $2.50 for our disk catalog with 5 free programs and start getting more bytes for your buck today!

Budgetbytes™
Orders only: 1-800-356-3551
Customer Service: 1-913-271-6022
P.O. Box 2248 Topeka, KS 66601
Please support Shareware by sending in registration fees.
VISA
Macintosh is a trademark of Apple Computer, Inc.

Please circle 74 on reader service card.

Why this publication and more than 1,200 others let us go over their books

once a year.

Some publications, we're sorry to say, keep their readers undercover. They steadfastly refuse to let BPA (Business Publications Audit of Circulation, Inc.) or any other independent, not-for-profit organization audit their circulation records.

On the other hand, over 1,200 publications (like this one) belong to BPA. Once a year, BPA auditors examine and verify the accuracy of our circulation records.

The audit makes sure you are who we say you are. The information helps advertisers to determine if they are saying the right thing to the right people in the right place.

It also helps somebody else important: you. Because the more a publication and its advertisers know about you, the better they can provide you with articles and advertisements that meet your information needs.

BPA. For readers it stands for meaningful information. For advertisers it stands for meaningful readers. Business Publications Audit of Circulation, Inc. 360 Park Ave. So., New York, NY 10010.

MEDIA INTELLIGENCE

BPA

POWER, PERFORMANCE AND PRODUCTIVITY FOR YOUR APPLE II

Add more power to your Apple II AND discover proven tips and techniques to upgrade your system with a subscription to A+ Magazine, the #1 Apple II Magazine!

Every month, you'll have hands-on reviews and evaluations of new Apple II hardware and software delivered to your door...you'll find clearly written articles and tutorials covering business, educational and entertainment applications for all Apple II systems...PLUS, you'll build a library of helpful tutorials and programs for the new IIGS!

Keep up-to-date with coverage on old software favorites and the newest releases...create a full color gallery of computer-generated art (with easy to follow suggestions and hardware requirements)...and you can depend on A+'s monthly business, education and game features to keep you in the know!

SUBSCRIBE TODAY AND SAVE 50%!

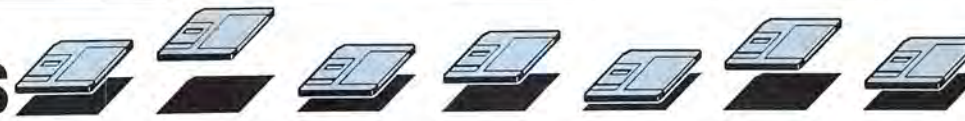
One year (12 issues) only $19.97—Save 44% OFF!
Two years (24 issues) only $35.40—Save 50% OFF!

Savings based on annual single-copy price of $35.40. Basic annual subscription price is $24.97.

COMPUTER PRESS ASSOCIATION
A+
WINNER BEST COMPUTER MAGAZINE
1986

For fast service call 1-800-852-5200 today!

MINIFINDERS



Smart Alarms is the best reminder system for the Mac. Easy to ★★★★½use, versatile and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. ★★★★½Menu Key adds Command key sequences to programs; View allows looking at and moving data between up to 8 *MacWrite* documents; also included are BackPrint, Touch 'n' Go, Blank, Encrypt and Launch. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86)

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint* ★★★★ *Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Nov 85)

Copy II Mac does efficient sector and bit copies and in its latest ★★★★★ version can back-up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86)

DiskExpress unfragments disk volumes by reorganizing data into ★★★★ continuous sectors and arranging files to slow down further fragmentation. Works with *MacServe*, floppy drives and most hard drives. Requires 512K+. $39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files. ★★★★½Creates a "SmartSet" of floppy disks so incremental backups only update files modified since the last backup procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

Disk Librarian is an easy to use shareware cataloguing program. ★★★★ Criteria selection option for generating subcatalogs. Requires 512K+. $20. Little Bit, 469 Edgewood Ave., New Haven, CT 06511. NCP (Apr 87)

Disk Ranger is a speedy cataloguing program that doubles as an ★★★★ efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. $49.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Mar 86)

DiskTop 2.0 is a desk accessory *Finder* replacement of extraordi- ★★★★½nary power and ease of use. Comes with the useful *LaserStatus* DA and *Widgets* application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, $7; $10 with new manual. $39.95. CE Software, 801 73rd St., Des Moines, IA 50312. NCP (Aug 87)

Dubl-Click Calculator Construction Set lets users design per- ★★★★½sonalized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Fedit Plus is the file and disk editor for everyone, from newest Mac ★★★★★ owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. $49.95. MacMaster Systems, 108 E. Fremont Ave., #37, Sunnyvale, CA 94087. NCP (Sep 86)

FlashBack is a utility to backup HFS hard disks onto floppies. A ★★★ unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86)

Glue adds a print-to-disk capability to many programs. *ImageSaver* ★★★★½installs as printer driver, *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $59.95. Solutions International, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run ★★★★½specified programs on their hard disks. The list of patches is constantly expanding. $89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk backup ★★★★½utilities. Backup by file/folder or last changes. Backup specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can ★★★★ search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. $39.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sep 86)

LabView automates the repetitive task of controlling laboratory ★★½ instruments. Rich icon-based language allows flow chart type programming, but response is slow. Requires 512K+. $1995. National Instruments, 12109 Technology Blvd., Austin, TX 78727. NCP (Aug 87)

LaserServe is a printer spooler for AppleTalk networks. After ★★★★★ installation all operations done via a desk accessory. Works with both *MacServe* and *TOPS*. Requires 512K+ and 800K drive or hard disk. $95 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb 87)

Mac Disk Catalog II is a utility that will quickly organize a ★★★★ moderate size disk library. Easy to use with powerful reporting and label-making features. $49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

MacFlow is a design tool created for programmers. Traditional ★★★½ flowcharting symbols are linked together, and a symbol can be connected to a separate flowchart file. Symbols can't be edited, precluding using *MacFlow* for other applications. $125. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr 87)

MacInUse tracks time spent in applications and saves info as text ★★★★★ files. Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client records, etc. $49. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan 87)

MacLabeler lets users instantly index and print labels for all the ★★★½ disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. $49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use ★★★★★ this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. $90. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

Mac + II lets you run Apple II software on the Mac. Emulation ★★★ speed is only 35 to 45 percent of a real Apple II, so graphics especially suffer. Games also run slow. Good for ex-Apple II owners who have large software collections. $149.95. Meacom, PO Box 272591, Houston, TX 77277. CP

MacSafe is a data file security program that allows you to place ★★★★ multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. $149.95. Kent Marsh Limited, Inc., 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print ★★★★½server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. $250. Requires 512+ or Mac XL. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacZap is a three-part disk and memory utility. It can be used to ★★★★ recover some damaged files and disks, compare disks,

SOFTWARE

BUSINESS & PRODUCTIVITY

Aegis Development
Doug Clapp Word Tools ..... $CALL
Affinity
Tempo $64.00
Ann Arbor
Full Paint $59.95
Fullwrite Professional ..... $CALL
Batteries Included
Battery Pack $27.00
Thunder $29.00
Berkeley Systems
Stepping Out $64.00
Blyth Software
Omnis 3+ $279.00
Executive Assistant ..... $CALL
Borland
Sidekick 2.0 ..... $59.00
Reflex ..... $CALL
Travelling Sidekick $42.95
Turbo Pascal $62.00
Central Point
Copy II Mac $24.00
Chang Labs
C.A.T. ..... $CALL
Rags to Riches III 3 pak $287.00
Cricket
Cricket Draw $159.95
Cricket Graph $129.95
Statworks $79.95
Data Tailor
Trapeze $169.95
Dataviz
Mac Link+ w/cable $149.00
Digital Etc.
Turbo Maccountant $287.00
Dubl-click
Calculator construction set .. $59.00
Net Paint vols 1 or 2 ..... $32.00
World Class Fonts any Vol .. $32.00
Forethought
Filemaker+ $159.00
Powerpoint ..... $CALL
Foundation Publishing
Comic Strip Factory $62.00
Letraset
Ready Set Go 3.0 ..... $239.95
Living Videotext
More $159.00
Mainstay
MP $89.00
Translator to C for VIP $67.00
Microsoft
Excel $219.00
Multiplan $105.00
File $109.00
Word $229.00
Basic $87.00
Fortran ..... $CALL
Chart $72.00
Mindwrite Software
Mindwrite ..... $CALL
Monogram
Dollars & Sense $89.00
Odesta
Double Helix $289.00
PCS
Versaterm $69.00
Versaterm Pro $194.00
Sartori
Bulk Mailer $77.00
Bulk Mailer + ... $199.00
Legal Billing $329.00
Time Billing $389.00
Silicon Beach Software
Silicon Press $44.95
Super Paint $59.95
Super 3D $109.00
Software Ventures
Microphone $59.95
Springboard
Certificate Maker ..... $CALL
Supermac Software
Super Spool $48.95
Super Laser Spool $97.00
Diskfit $59.95
Other Supermac Products Available
Call for Price!!

Target Software
Maclightning $52.95
Memorandum $69.95
Mentor $64.00
Mentor Plus $119.00
Medical or Legal Dictionary . $64.95
Thesaurus $32.00
Scoop ..... $CALL
Think Technologies
InBox ..... $CALL
T/Maker
Click Art/Any Vol $31.95
Write Now $99.00

GAMES & EDUCATIONAL

Avalon Hill
MacPro Football $29.95
Broderbund
Ancient Art of War $31.95
The Toy Shop $39.95
Print Shop $49.95
Bullseye
Ferrari Grand Prix $44.00
Fokker Triplane $44.00
Davidson & Associates
Math Blaster $37.00
Speed Reader II $49.00
Electronic Arts
Autoduel $33.95
Chessmaster 2000 ..... $29.95
OGRE ..... $CALL
Patton vs Rommel $26.95
Pinball Constr. $26.95
Scrabble ..... $CALL
Sky Fox $26.95
Starfleet 1 ..... $CALL
Ultima III $39.95
Ultima III Cluebook ..... $ 9.95
Epyx
Sub Battle Simulator ..... $CALL
Microsoft
Flight Simulator $32.95
Mindscape
Balance of Power $30.00
Crossword Magic $32.95
Deja Vu $29.00
King of Chicago $37.95
SAT $45.00
Uninvited $36.95
P.C.A.I.
Mac Golf $39.95
Silicon Beach
Airborne $19.95
Dark Castle $29.95
Enchanted Sceptre $22.00
World Builder $47.95
Simon & Schuster
Typing Tutor III $42.95
Spectrum Holobyte
GATO $28.00
Orbiter $34.95

HARDWARE

Apple
Macintosh Computers ..... $CALL
Laserwriter ..... $CALL
Imagewriter ..... $CALL
Beck-Tech
Fanny Mac $79.95
Central Point
800k Quiet Drive $189.00
Chinon
800k /floopy Drive $184.00
Ehman Engineering
Call for Price on all products!
Softstyle
Macenhancer ..... $CALL

MODEMS
Hayes
Smartcom II/Mac $97.00
Sm'tmodem 1200 w/mac cable $CALL
Migent
300/1200 Baud,
100% Hayes Compatible ..... $CALL
Pocket Modem ..... $CALL

PRINTERS
EPSON
All models in stock
CALL FOR LOWEST PRICES !!!
PANASONIC
1080AP $187.00

ACCESSORIES

Blohard
MACFAN $99.95
Platinum Macfan $99.95
I/O Design
MAC+ Bag $69.95
Macintosh SE Bag $89.95
Imagewriter Bag $49.95
Imagewriter II Bag $54.95
Innovative Concepts
Flip-n-File Micro (holds 25) ... $7.95
Flip-n-File (holds 40) $15.95
Kensington
A-B Box $59.00
Control Center $59.00
Drive Cleaning Kit $21.95
Filter $29.00

Maccessories starter pak $53.00
Mouse cleaning kit & pocket $16.00
Mouse Pocket $8.95
Mouseway $9.95
Surge Supressor $32.00
Swivel $20.00
System Saver $62.00
Tilt/swivel $62.00
Turbo Mouse $77.00
N2
Mac Cables $call for price & config.
Summit
Imagewriter Ribbons $5.95
Thunderware
Thunderscan ..... $CALL

EDUCATIONAL & CORPORATE ACCOUNTS:

We offer a full line of services catering to your needs.
To reach our Educational & Sales Department
Call 1-800-533-1131
Inside PA
Call 814-234-2236

DISKS per box of 10

3 1/2"	# Boxes 1-4	5-9	10+
SONY			
SS/DD	12.45	11.95	11.45
DD/DD	16.95	16.45	15.95
MAXELL			
SS/DD	11.95	11.45	10.95
DD/DD	17.95	17.45	16.95
FUJI			
SS/DD	13.45	12.95	12.95
DD/DD	18.45	17.95	17.45
VERBATIM			
SS/DD	14.45	13.95	13.45
DD/DD	19.95	19.45	18.95

OPEN: 8:00 AM - 9:00 PM Mon- Fri
10:00 AM - 6:00 PM Sat- Sun EAST COAST TIME

DON'T SETTLE FOR LESS...
tcp SHIPS IT

FEDERAL EXPRESS®

Software orders over $50 & Accessories/Peripherals under 8 pounds will be shipped FEDERAL EXPRESS
(Yes even at these prices). You only pay TCP's standard shipping charge of $4.00 per order. Orders arriving before 11:00 AM our time will be shipped out same day. If part of your order is backordered the remainder will be shipped UPS Ground for FREE.

MAC BOTTOM

HD21 SCSI $839.00
HD20 Serial Version... $849.00
HD45 SCSI ..... $CALL
Modem Option..... $CALL
Available in Platinum or Beige

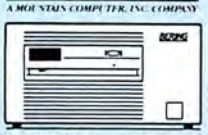
ProApp 20S $669.00
ProApp 30S .. $799.00
ProApp 40S
..... $CALL

Logic Array

MICROSOFT®
The High Performance Software™
EXCEL $219.00
WORD V3.0 ..... $229.00
WORKS $169.00

cricket software
GRAPH $129.95
STATWORKS ... $79.95
DRAW $159.95

BERING
A MOUNTAIN COMPUTER, INC. COMPANY



SINGLE 20 Meg
Removable Bernoulli - SCSI $1349.00
DOUBLE 20 Meg
Removable Bernoulli - SCSI $2079.00

PANASONIC
1080 AP PRINTER
Macintosh Compatible $187.00
2 Year Warranty

Other Brands of HD's in Stock
If a product you want is not advertised, please call - it might be in stock

- If through some oversight we don't have the lowest price, we would appreciate the opportunity to beat it. If we can, you will get the benefit of our Federal Express shipping on software orders over $50.00
- We accept Mastercard, Visa, C.O.D., & Mail Orders. **Your credit card is not charged until your order is shipped.**
- Purchase orders are accepted from qualified corporations and institutions. Minimum order of $50.00 required.
- No sales tax on orders outside of PA

To order by mail: We accept money order, certified check, personal check. Allow 2 weeks for personal check to clear.
Shipping: $4.00 for software and accessories/ $10.00 for printers and color monitors/ $8.00 for disk drives and other monitors/ Add $3.00 per box shipped COD. Call for other shipping charges. Additional shipping required on APO, FPO, AK, HI, and foreign orders.
Terms: ALL PRICES REFLECT CASH DISCOUNT, ADD 1.9% FOR MASTERCARD OR VISA. All products include factory warranty. **ALL SALES ARE FINAL.** Defective items replaced or repaired at our discretion. Pennsylvania residents add 6% sales tax. Prices and terms subject to change without notice.

TOLL FREE 1-800-468-9044
INFORMATION AND PA ORDERS 814-234-2236

TUSSEY COMPUTER PRODUCTS P.O. BOX 1006 STATE COLLEGE, PA 16804

Please circle 79 on reader service card.

MINIFINDERS

analyze disk structure and make back-up copies of most disks. $60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

Menu Fonts displays the names of fonts in the acutal font instead of standard Chicago. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with *LockOut*, a utility that gives password access to your Mac, and *FastFormatter*, a utility for formatting multiple blank disks. Requires 512K+. $15. Beyond Software, 3865 N. Oracle Rd., Tucson, AZ 85705. NCP (Jul 87)

myDiskLabeler is an excellent label maker. It can read directories, and use large or small icons or anything desired. Comes with 54 precut labels. $44.95; with color printing ability (on the ImageWriter II), $54.95; with PostScript font capability (on the LaserWriter), $64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)

'Ncryptor is a simple, safe program that lets users password their files. The same program is used for encoding and decoding. This is one of the best products in its category. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Packit III is an essential utility. Primarily used to temporarily "glue" files together, it can also compress and encrypt. Feeware. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

Printworks for the Mac is a comprehensive software-based dot-matrix printer control system. Optimizes printing from different applications. Requires 512K+. $75. SoftStyle, 7192 Kalanianaole Highway, Honolulu, HI 96825. NCP (Aug 87)

Programmer's On-line Companion puts an abridged version of *Inside Macintosh* in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk full of handy programs. Several desk accessories include a menu bar clock and a terminal. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85)

RamSnap is a RAMdisk and disk cache in one easy to use package. Can store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

SmartScrap and The Clipper are two useful desk accessory utilities for graphics work. *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87)

Stepping Out is a software virtual screen extender. Lets you create a screen as large as memory allows. 9" screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Jun 87)

SuperLaserSpool is a LaserWriter spooler. Very fast because it does conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95 single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is near instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Jun 86)

Tempo is a desk accessory that allows most Mac commands to be intelligently recorded and played back. Capabilities include pausing, conditional branching and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

TMON is *the* debugger for the Mac. This isn't open to question. *TMON* is simply the best. Comes with the latest version of Darin Adler's Extended User Area. $100. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to increase the speed of Xmodem data transfers from national data bases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP

Twelve-C Financial Desk Accessory brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP

II in a Mac is a graphically oriented Apple II emulator with unique features, such as text and graphics copy from Apple screen to Mac Clipboard. Suffers speed problems associated with "virtual machine" emulation. $69. Micro-W Distributing, 1342B Route 23, Butler, NJ 07405. CP

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86)

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87)

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $75 beginners, $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86)

Basic Compiler is the long awaited compiler for *Microsoft BASIC*. The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87)

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and standalone applications. Requires 1M+. $995. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug 87)

ExperLISP is a useful programming language for high-level programmers. The more you use it, the more you'll figure out about it. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 33108. NCP (Mar 87)

Lightspeed C provides an integrated environment for developing desk accessories, applications and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr 87)

Lightspeed Pascal is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment.

MINIFINDERS

Requires 512K+. $125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb 87)

LPA MacProlog is a flexible program that supports several Prolog
‡‡ syntaxes, producing a rich programming environment. However, the program's implementation and documentation are both poor. $295. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Mar 87)

MacAsm is a software development system that allows programs
‡‡‡ to be written in assembly language. Programmers can assemble, edit and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 5311B Derry Rd., Agoura Hills, CA 91301. NCP

Mac C is a good, highly Mac-oriented implementation of this
‡‡‡‡ popular development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP

MacExpress is a development environment or shell. Programmers
‡‡‡ use it to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86)

MacForth Plus is an excellent implementation of the popular Forth
‡‡‡‡ programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP

Mach II is a multitasking implementation of Forth that allows local
‡‡‡‡ variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86)

Macintosh 68000 Development System is a fairly traditional
‡‡‡‡ assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP

Macintosh Pascal is Apple Computer's version of this very popular
‡‡‡ programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP

MacScheme is a LISP dialect with "artificial intelligence" capabili-
‡‡‡ ties. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86)

MacScheme+Toolsmith is a Mac version of Scheme, a LISP
‡‡‡‡‡ dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get *Toolsmith*. Requires 1M+. $250. Semantic Microsystems, 4470 S. W. Hall, Beaverton, OR 97005. NCP (Aug 87)

Megamax C is an easy to use, full version of C. Has a compiler,
‡‡‡‡ linker, disassembler, editor and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP

Microsoft BASIC was the Mac's first programming language. This
‡‡‡‡ interpreter (it's not a compiler) now supports the Toolbox. For nonprogrammers there are lots of programs available to run. $99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP

MIDIBasic is a library of simple, but highly useful routines for
‡‡‡‡ writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

We RENT Mac Software !!

MacStore™ National 800-847-0026

1671 Executive Dr.
New Braunfels
Texas 78130

Ask about our frequent renter program !

We'll match any software rental price in this issue.

We have hundreds of other titles available for the Mac. If you don't see what you want - call us !

Accessory Pak 1 or Art Grabber	8.80
Accounting Packages	Call
Battery Pak	8.80
Bulk Mailer	18.70
Business Filevision	56.25
Calendar Maker or Certificate Maker	8.80
Click Art, Effects, Letters, Publications (each)	8.80
Consultant	26.80
Copy II Mac	8.80
Championship Boxing or Baseball	8.80
Cricket Graph	27.90
Davinci (We have them all!)	Call
Dollars and Sense	18.70
Double Helix	60.50
Excel	52.75
Filemaker Plus	36.50
Fluent Fonts, Fontastic, Font Explorer, Laser Fonts, Superfonts, UltraFonts...	Call
Ferrari Grand Prix or Flight Simulator	8.80
Full Paint	13.56
Gato, Orbitor, or Gridwars	8.80
Helix	49.50
Infocom games	Call
LaserSpool	15.16
Keystroke	64.68
Kid's Time	8.80
Languages (Asm, Basic, Z Basic, C, Cobol, Experlisp, Fortran, TML Pascal, etc.)	Call
Microsoft Chart, File, Multiplan, Word	Call
Mac Attack	8.80
Mc Cad	62.56
Mac Challenger or Mac Command	8.80
Mac Draft	33.84
Mac Draw	32.47
Mac Golf	9.10
Mac Labeler	8.80
Mac Lightning	14.80
Medical or Legal Dictionary	13.30
Mac Mat Book (all volumes 1 - 6)	25.47
Mac Publisher & Mac Publisher II	Call
Mac Spell Right or Mac Spell +	13.85
Mac 3 D	31.81
Mac Tracks	8.80
Mac the Knife 1, 2, or 3 (Art, Fonts, Ripper)	Call
Max RAM Max PRINT	8.80
Micro Planner Plus	72.00
More	34.69
Musicworks or Videoworks	13.19 & 14.15
Omnis III Plus	57.12
OverVue	35.80
Picture Base or Postermaker	8.80
Pinball Construction Set	8.80
Quick Disk, Quick Word, Quick Paint (each)	8.80
Ready Set Go	Call
Smart Alarms	8.90
Super Paint	13.40
Tempo	15.36
Thunderscan	41.60
Will Writer	8.80
Write Now or Word Handler	Call
Works	37.90
Accessories	
Cables - we stock most Mac cables	Call
Carrying Cases for all Macs	Call
10 Boxed Sony Disks	10.95
800k External Drives (double sided)	184.50
Upgrades & Power Supply Board Repairs	Call
20 Meg SCSI Hard Disk	695.00

No membership fee · 16 day rentals · Rental applies to purchase

The store logo is a trademark of MacStore, Inc., the apple logo a trademark of Apple Comp. Inc.

MasterCard VISA AMERICAN EXPRESS DISCOVER

In Texas 800-222-1537 After tone ask operator for extension 993265

or dial direct 512-629-5419

Please circle 165 on reader service card.

LASER PRINTER LABELS!

Avery. The world's first supplier of labels specifically designed for **desktop laser printers.** Available wherever computer and office supplies are sold. Ask for product numbers 5260, 5261 and 5262. Call (800) 535-3232, X30 for the nearest dealer in your area.

AVERY

Please circle 138 on reader service card.

MINIFINDERS

Object Logo is an object-oriented programming language with ★★★★ access to the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

Personal Prolog is an inexpensive and well-documented program. ★★★★ Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac interface are excellent. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has ★★★★ extensive debugging facilities, but you'll need separate *Toolbox* disk with 58 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source ★★★★ code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type data base that provides ★★★★ fast and efficient administration of large data files in applications developed with *TML* compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, ★★★★★ capable of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K. $99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Jun 86)

TML Source Code Library shows how to write programs that use ★★★★½ custom definition routines, speech, serial drivers, split bars and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming ★★★★ system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating stand- ★★★★ alone applications that takes advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker* and *MacInTalk*. Requires 512K. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)

EDUCATION

ChipWits is a combination game and teaching tool. Players create ★★★½ programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP

Course Builder (version 2.0) creates standalone educational ★★★★ applications. An easy-to-learn dedicated programming language uses blocks and arrows. Graphics, animation and sound can be integrated. Version 2 allows mathematical calculations. Poor documentation. $395, plus $10 shipping. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, TN 37931. NCP (Oct 87)

KidsTime is a package of five quality educational programs for ★★★★ children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one

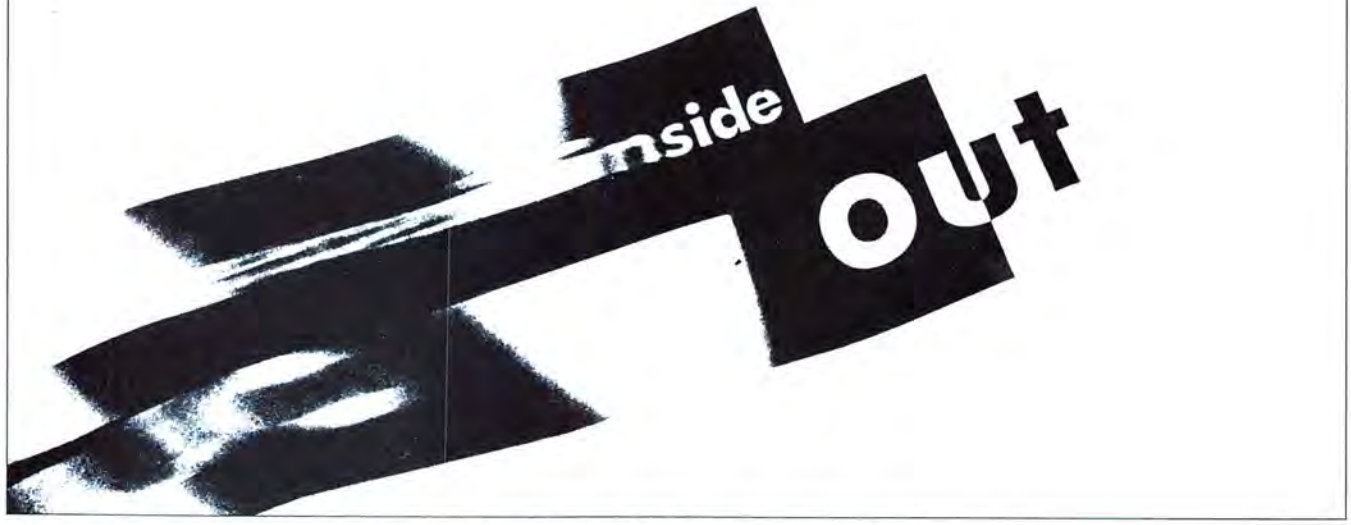
inside Out™

Inside Out, the first relational database engine for Macintosh™, reaches far beyond your highest expectations. Inside Out brings the power of a 4th generation database language to conventional Pascal or C development systems. Inside Out maintains every bit of information in a database in one Macintosh file. This file can grow as large as 256 gigabytes. Each database consists of up to 128 logical files. Three different types of logical files provide support for virtually any type of data, including variable length data. Database views allow applications to efficiently process related data, while guaranteeing data independence.

The multi-user version of Inside Out adds further to its impressive list of features, with improved record lockout to extend network efficiency. Of course, Inside Out is fast!

For direct orders or further information on Inside Out, contact Shana Enterprises Inc.
200, 9704-54 Avenue, Edmonton, Alberta, Canada T6E 0A9
Telephone 403 438.6548, AppleLink CDA0004

Macintosh is a trademark of Apple Computer, Inc.
Inside Out and the Inside Out logotype are trademarks of Shana Enterprises Inc.



Please circle 64 on reader service card.

MINIFINDERS

is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct 86)

MacEdge and **MacEdge II** each contain 8 reading or math drill ♦♦♦ programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both ♦♦♦♦ standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this ♦♦♦ arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. ♦♦♦♦ It has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 86)

Alter Ego simulates the entire lifetime of a fictional character. The ♦♦♦ player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jun 86)

The Ancient Art of War gives users a chance to refight some ♦♦♦♦½ famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Archon pits the forces of Light against Dark in a quest to gain ♦♦♦♦½ control of five Power Points on a checkerboard grid. The shifting cycles of squares' colors keeps the balance of power ever-changing. One or two players. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Balance of Power is the world's first computer peacegame. This ♦♦♦♦♦ simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen ♦♦♦♦ and paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

Borrowed Time casts players as detectives who have to solve their ♦♦♦♦ own murder—before it happens. This game requires players to think and act like a detective to solve the game. Good sentence parser, sketchy Mac interface. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (May 86)

Bridge 4.0 provides three other players and the cards for a game ♦½ of rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town.

Page Maker.

Page Master.

More news from Professor MacTeach.™ It's PageTutor.™ the fast, effective way to master PageMaker 2.0™ from Aldus.

PageTutor is your way to learn desktop publishing *in about an hour.* Forget the manual — just listen as friendly instructors guide you step-by-step through PageMaker's many features. Choose any (or all) of the three expertly-designed tutorials: Beginning, Intermediate, and Tips & Techniques. Each package contains an audio cassette, practice disk, and summary card.

Call Professor MacTeach today at (408) 559-8635, or send in the attached coupon, and discover how easily you can become a PageMaker expert. . . for less than $50.

. . .
Personal
Training Systems . . .
Self-Paced Training For Mac™ Software

You may call collect. Pagemaker is a trademark of Aldus Corp. Professor MacTeach and PageTutor are trademarks of Personal Training Systems.

Yes, send me more information on PageTutor.

Name

Company

Address

City State Zipcode

Daytime Telephone Number of Macs in Your Office

PERSONAL TRAINING SYSTEMS. P.O. Box 51240, San Jose, CA 95151 408-559-8635

Please circle 60 on reader service card.

AD INDEX

PAGE	ADVERTISERS	RS #
96-97	Adobe Systems Inc.	286
28-29	Aldus	262
121	Alp Systems	93
66	ALSoft, Inc.	240
67	ALSoft, Inc.	298
173	Altsys	99
19	Anatex	61
124-125	Ann Arbor Softworks	34
4	Anthro	NA
199	Apple	NA
102-103	AST Research	NA
117	AST Research, Inc.	NA
141	AST Research	NA
207	Avery Int'l.	138
39	Bede Tech	277
24	Bering Industries, Inc.	7
50	Berkeley System Design	23
64	Bible Research Systems	97
140	Bogas Productions	149
49	Borland International	137
33	Borland International	158
73	Borland International	9
C2-P1	Borland International	128
93	BrainPower, Inc.	8
151	Bravo Technologies, Inc.	234
201	Budget Bytes	74
191	Cauzin Systems	41
219	CDA Computer Sales	89
22	Central Point Software, Inc.	105
195	CE Software	38
12-13	Circo Business Solutions	30
180	CMS	43
80	CompuCover	92
178	CompuServe	208
130	Computer Cover Co.	202
142	Computer Friends	200
200	Coral Software	106
75	Cricket Software	132
77	Cricket Software	134
133	Crown Publishers	98
139	Cutting Edge	104
	Diehl Graphsoft, Inc.	242
218	Diskette Connection	279
62	Diversified I.O.	51
175	Dubl-Click Software, Inc.	108
143	Dynamac Computer Products	273
215	D2 Software, Inc.	176
80	Educomp	119
7	E-Machines	18
172	Ergotron	187
168-169	Everex	151
34-35	Fifth Generation	146
68-69	First Class Peripherals	120
60-61	Forethought Inc.	225
200	Future Music/Passport Design	130
111, 112, 113	General Computer Corp.	81
214	GDT Software	139
63	Great Wave Software	113
17	Hewlett-Packard Co.	22
139	Image Club Graphics	NA
45	Infinity	13
8-9	Jasmine Computer Systems Inc.	58
119	Kensington Microware Ltd.	142
214	Kent Marsh Limited, Inc.	238
177	Laser Connection	220
134-135	Layered	70
107	Levco	209
91, 129	Living Videotext	NA
23	Lo Down	15
197	Lundeen & Assoc.	173
95	MacDoctor Electronics	182
14	MacMemory	115
167	MacRentals	152
176	Macromind	193
207	MacStore, Inc.	165
53-58	MacWarehouse	110
131	Manx Software Systems	194
165	Meta Software	268
217	Micro-Analyst, Inc.	143
133	Micro Electronic	NA
26	MicroGraphic Images	145
88-89	Microsoft Corp.	NA
10	Microsoft Corp.	NA
C4	Microtech Peripherals, Inc.	140
82-83	MindWrite	78
193	Mirror Technologies, Inc.	188
46	MSC	186
152-153	Nantucket Corp.	224
62	Nikrom Technical Products	266
20	NuData	21
159	Nutmeg	287
163	Olduvai Software, Inc.	118
118	Open Mac Enterprises	87
36	Orange Micro	237
6	Orange Micro	16
123	PC & S	218
C3	Peripheral Land	254
145	Personal Computer Peripherals Corp.	12
209	Personal Training Systems	60
79	PostCraft, Int'l.	27
109	Practical Computer Applications	101
200	Primera Software	281
40-43	Programs Plus, Inc.	69
144	Public Domain Exchange	5
38	Quark	85
81	Rodime Systems	10
201	Safeware	285
188-189	Saving Zone, The	NA
65	SBT Corp.	288
11	ScanCoFurn	67
79	Sequoia	297
208	Shana Enterprises, Inc.	64
64	Simulated Environment	126
161	Softsync, Inc.	289
79	Software Library	NA
198	Solutions, Inc.	265
25	Spectrum HoloByte, Inc.	40
27	Spectrum HoloByte, Inc.	39
132	Sun Systems	19
51	SuperMac Technology	NA
16, 78	SuperMac Technology	NA
213	Survivor	147
18	Symmetry	3
149	T/Maker Co.	29
101	Turner Hall	75
205	Tussey Computer Products	79
6	Tymlabs Corp.	52
22	Unison	211
5	Uptime	153
120	USA Flex	150
174	Videx	185
182	Vision Technologies	156
184/185	WarpNine Engineering	178
105	Word Perfect	160
213	Zap Computers	72

COMPLETELY FREE! **NO COST!** **NO OBLIGATION!**

FREE INFORMATION FAST!

ON MACINTOSH PRODUCTS & SERVICES

Here's how you can get more information on products or services advertised in **MacUser**.

COMPLETELY FREE!

- Print your name and address clearly in the spaces provided on the card opposite.
- Circle the number(s) on the card corresponding to the reader service number(s) for advertised products or services in which you're interested. You can request information on any products or services in which you are interested, providing a reader service number appears in each advertisement!

NO COST!

- For quick reference, we have included both the page number and the reader service number on the Ad index.
- Now's the time to subscribe to MacUser. Just check the appropriate box on the attached card and we'll send you 12 issues, a full year for only $19.97—and we'll bill you later!

NO OBLIGATION!

- Detach and mail the card. Literature on the products or services you have indicated will be sent directly to you from the advertiser, free of charge. No postage is necessary if your card is mailed in the United States.

MacUser

READER SERVICE CARD

October 1987 **Void after January 31, 1988**

Name_____ Phone (____) _____

Company_____ Title_____

Address_____

City_____ State_____ Zip_____

1. Which of the below best describes your job responsibilities?
   ☐ a) Top Management ☐ b) Department Manager
   ☐ c) Owner ☐ d) Other
2. What are the approximate number of employees in your company?
   ☐ e) 25 or less ☐ f) 26-99 ☐ g) 100-499
   ☐ h) 500-999 ☐ i) 1000 or more
3. In the next six months, how many computers will you personally buy or influence the purchase of?
   ☐ j) 1 ☐ k) 2-5 ☐ l) 6-9 ☐ m) 10-24 ☐ n) 25 or more
4. On average, how much time do your spend on a computer each week?
   ☐ o) Less than 2 hrs. ☐ p) 2-6 hrs. ☐ q) 6-10 hrs.
   ☐ r) 10-20 hrs. ☐ s) Over 20 hrs.
5. Do you plan to buy additional computer equipment within the next six months?
   ☐ t) Yes ☐ u) No
6. Is this your personal copy of MacUser?
   ☐ v) Yes ☐ w) No

4. ☐ Begin my subscription to MacUser for one year (12 issues) for only $19.97. A savings of 58% OFF the single copy price.

MU10872

1 11 21 31 41 51 61 71 81 91	101 111 121 131 141 151 161 171 181 191	201 211 221 231 241 251 261 271 281 291
2 12 22 32 42 52 62 72 82 92	102 112 122 132 142 152 162 172 182 192	202 212 222 232 242 252 262 272 282 292
3 13 23 33 43 53 63 73 83 93	103 113 123 133 143 153 163 173 183 193	203 213 223 233 243 253 263 273 283 293
4 14 24 34 44 54 64 74 84 94	104 114 124 134 144 154 164 174 184 194	204 214 224 234 244 254 264 274 284 294
5 15 25 35 45 55 65 75 85 95	105 115 125 135 145 155 165 175 185 195	205 215 225 235 245 255 265 275 285 295
6 16 26 36 46 56 66 76 86 96	106 116 126 136 146 156 166 176 186 196	206 216 226 236 246 256 266 276 286 296
7 17 27 37 47 57 67 77 87 97	107 117 127 137 147 157 167 177 187 197	207 217 227 237 247 257 267 277 287 297
8 18 28 38 48 58 68 78 88 98	108 118 128 138 148 158 168 178 188 198	208 218 228 238 248 258 268 278 288 298
9 19 29 39 49 59 69 79 89 99	109 119 129 139 149 159 169 179 189 199	209 219 229 239 249 259 269 279 289 299
10 20 30 40 50 60 70 80 90 100	110 120 130 140 150 160 170 180 190 200	210 220 230 240 250 260 270 280 290 300

MacUser

READER SERVICE CARD

October 1987 Void after January 31, 1988

Name_____ Phone (____) _____

Company_____ Title_____

Address_____

City_____ State_____ Zip_____

1. Which of the below best describes your job responsibilities?
   ☐ a) Top Management ☐ b) Department Manager
   ☐ c) Owner ☐ d) Other
2. What are the approximate number of employees in your company?
   ☐ e) 25 or less ☐ f) 26-99 ☐ g) 100-499
   ☐ h) 500-999 ☐ i) 1000 or more
3. In the next six months, how many computers will you personally buy or influence the purchase of?
   ☐ j) 1 ☐ k) 2-5 ☐ l) 6-9 ☐ m) 10-24 ☐ n) 25 or more
4. On average, how much time do your spend on a computer each week?
   ☐ o) Less than 2 hrs. ☐ p) 2-6 hrs. ☐ q) 6-10 hrs.
   ☐ r) 10-20 hrs. ☐ s) Over 20 hrs.
5. Do you plan to buy additional computer equipment within the next six months?
   ☐ t) Yes ☐ u) No
6. Is this your personal copy of MacUser?
   ☐ v) Yes ☐ w) No

4. ☐ Begin my subscription to MacUser for one year (12 issues) for only $19.97. A savings of 58% OFF the single copy price.

MU10871

1 11 21 31 41 51 61 71 81 91	101 111 121 131 141 151 161 171 181 191	201 211 221 231 241 251 261 271 281 291
2 12 22 32 42 52 62 72 82 92	102 112 122 132 142 152 162 172 182 192	202 212 222 232 242 252 262 272 282 292
3 13 23 33 43 53 63 73 83 93	103 113 123 133 143 153 163 173 183 193	203 213 223 233 243 253 263 273 283 293
4 14 24 34 44 54 64 74 84 94	104 114 124 134 144 154 164 174 184 194	204 214 224 234 244 254 264 274 284 294
5 15 25 35 45 55 65 75 85 95	105 115 125 135 145 155 165 175 185 195	205 215 225 235 245 255 265 275 285 295
6 16 26 36 46 56 66 76 86 96	106 116 126 136 146 156 166 176 186 196	206 216 226 236 246 256 266 276 286 296
7 17 27 37 47 57 67 77 87 97	107 117 127 137 147 157 167 177 187 197	207 217 227 237 247 257 267 277 287 297
8 18 28 38 48 58 68 78 88 98	108 118 128 138 148 158 168 178 188 198	208 218 228 238 248 258 268 278 288 298
9 19 29 39 49 59 69 79 89 99	109 119 129 139 149 159 169 179 189 199	209 219 229 239 249 259 269 279 289 299
10 20 30 40 50 60 70 80 90 100	110 120 130 140 150 160 170 180 190 200	210 220 230 240 250 260 270 280 290 300

COMPLETELY FREE! NO COST! NO OBLIGATION!

FREE INFORMATION FAST!

ON MACINTOSH PRODUCTS & SERVICES

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 27346 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
P.O. Box 40008-5008
Philadelphia, PA 19106-9931

COMPLETELY FREE!

NO COST!

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 27346 PHILADELPHIA, PA

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser
P.O. Box 40008-5008
Philadelphia, PA 19106-9931

NO OBLIGATION!

MINIFINDERS

Plays slowly since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St. Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move ★★★½ to a new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of *Hitchhiker's* fame $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will ★★★★★ appeal to both novices and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. $39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (Jul 87)

Dark Castle is an outstanding achievement in action games which ★★★★★ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Deja Vu: A Nightmare Comes True is a graphic adventure that ★★★★★ breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86)

Dinner at Eight is a useful recipe filing system that includes a ★★★★ collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes accordingly. $49.95. Rubicon, 2111 Dickson Dr., Austin, TX 78704. NCP (Jan 86)

Down Hill Racer is an action game with three skier personalities, ★★★★ four courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nice!) requires at least 1M. Requires 512K+. Not XL compatible. $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 87)

Enchanted Scepters is a surround sound graphic adventure ★★★★ game. It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Ferrari Grand Prix is an exciting race car simulation game. ★★★★ Mastering it takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

Flight Simulator puts you at the controls of a small plane (prop or ★★★★ jet) and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov 86)

Fokker Triplane is about as near to flying as you can get seated in ★★★★ front of a computer. Very realistic simulation and excellent graphics. Well designed and implemented. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Gato puts players in command of an American submarine in World ★★★★½ War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (Nov 85)

Grand Slam is an absorbing and realistic tennis simulation game. ★★★★ Practice or play tournament against Mac-controlled players

A Macintosh™ SCSI Hard Drive.

For the Price of a Apple™ 800k floppy drive !

ZAP SS/SCSI Drives:

ZAP SS-10	$399.99
ZAP SS-40	$799.99
ZAP SS-70	$1,199.99
ZAP SS-100	$1,499.99

All ZAP SCSI Hard Drives come complete (plug + go)

- Utility Software
- Pre-formatted drive
- Software Manual
- Cables
- 120 Day Warranty

Call and order your complete SCSI drive today.

(714) 581-4980

ZAP Computer Supplies

10005 Muirlands Ste. M+N

Irvine, CA 92718

Apple and Macintosh are registered trade marks of Apple Computer, Inc.

Add $10.00 shipping and handling, CA reasidents add 6.5% sales tax

Please circle 72 on reader service card.

MacMoney

Do You Know Where Your Money Goes?

MacMoney is a financial management program to help you get your finances organized by tracking bank, cash and credit card transactions.

"Its most outstanding feature is that it works the way the real world works" – A Fan*

See the May issue of *MacUser* for a complete review. A detailed brochure is available.

$74.95 plus $3.00 shipping/handling

(CA res add sales tax)

HAMac owners call for details of special trade-in offer.

Survivor Software Ltd.

11222 La Cienega Blvd, Suite 450

Inglewood, CA 90304

(213) 410-9527

*From a letter on file at Survivor Software.

Please circle 147 on reader service card.

MINIFINDERS

with different styles and abilities on four different surfaces. 512K or Mac Plus. $49.95. Infinity Software, 1331 61st St., Emeryville, CA 94608. CP (Nov 86)

HardBall is a baseball simulation game complete with umpire's ★★★★ calls and crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the ★★★★ famous Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good, "finely wrought and good-hearted game." $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Jun 87)

Leather Goddesses of Phobos is another in the long line of witty ★★★★★ and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3-D comic and a scratch 'n' sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. Move ★★★★ around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to *MacGolf*. ★★★½ Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf*. $34.95. Practical Computer Applications, 1305 Jefferson Hwy, Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a ★★★★½ choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Highway, Champlin, MN 55316. CP (May 86)

MacMan is a two-part package. The software portion is a decent ★★★★★ *PacMan*-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 934401. CP (Aug 87)

Mac Pro Football is a terrific sports simulation that gives you the ★★★★ chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

MacRacquetball uses digitized videos and sounds of professional ★★★½ players for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. $59.95. Practical Computer Applications, Inc., 1305 Jefferson Highway, Champlin, MN 55316. CP (Oct 87)

Make Millions is a fascinating business simulation in which the ★★★★★ player competes against the computer to take control of five companies, then run them profitably. Appeals to the closet capitalist in all of us. $49.95. Scarborough Systems/Mindscape, 3444 Dundee, Northbrook, IL 60062. CP

Maze Survival challenges players to destroy maze walls before ★★½ roving bugs squash themselves against it. Bugs lay eggs to spawn a new generation. Repetitive. $34.95. Oluvai Software, 830 NE Pop Tilton's Pl., Jensen Beach, FL 33457. NCP (Aug 87)

MazeWars+ is an interactive, multiplayer game to be played on ★★★★ AppleTalk or through a modem link. Chase opponents

New Improved Version!

Get Protected! Get $25!

Buy MacSafe for your new hard disk and get a $25 rebate!

You paid good money for your hard drive. Probably have insurance for it too. But what about your data? Now you can **password-protect** your documents & applications with MacSafe **and** get **$25** back from KML for doing so!

Why MacSafe?

MacSafe's new version gives you powerful password protection for your files using folder-like **safes**. And since it uses **icons** & its own **private desktop**, chances are you already know how to use it. Here are some reviews:

'Unique...Intuitive. You can rest assured...4 Mice!'-**MacUser**
'Superbly designed...excellent functionality...Best Buy of the Month!'-**The MACazine**

Here's How!

Send us your MacSafe registration card & a copy of your sales slip(s) showing the purchase of MacSafe & your hard disk. (Sales slips must be dated after 6/1/87 & within 45 days of each other). You'll get a **check** back for **$25!** But **hurry**. This offer expires Oct. 1, 1987.

Order Now! Only $149.95!

Call your favorite dealer or KML at...

800•325-3587
(713•623-8618 in Texas).

Dealers: Ask about *your* rebate incentive in the 'Sell a Hard Drive, Sell a MacSafe' campaign.

Kent Marsh Limited
1200 Post Oak Blvd • Suite 210
Houston • Texas • 77056

Please circle 238 on reader service card.

NEW One Single Driver will now support
- ANY daisywheel printer or typewriter with
- ANY Macintosh computer in
- ANY Macintosh application.*

MAC DAISY LINK™
PRINTER DRIVER

- Easy installation via the chooser.
- Supports sheet feeders - 3 bins.
- Auto proportional word spacing, and micro character adjustment.
- Fully justifies text to within 1 pt.
- Follows the "What you see is what you get" philosophy.
- User customizable for stylistic changes ie. bold, underline, italics.
- Foreign letter characters, or special symbols supported.
- Custom fonts provided for 6 or 8 lines per inch, and user formattable for other fonts on typewriter.
- Modem baud rates from 300 to 57600 baud.
- * Supports all applications that follow the Mac user interface guidelines.

The "**PRINT-LINK™**" continues to be the preferred tool for dot matrix printers.

For inquiries: (604) 291-9121
To Order: 800-663-6222
Dealer inquiries welcome

GDT Softworks Inc.
Suite D, 2800 Douglas Road, Burnaby B.C. V5C 5B7, Canada

Macintosh™ is a trademark licensed to Apple Computer, Inc.
The PRINT-LINK™ & MAC DAISY LINK™ are trademarks of GDT Softworks Inc.

Please circle 139 on reader service card.

MINIFINDERS

through a four level maze. Requires 512K+, AppleTalk or Hayes compatible modem. $49.95. MacroMind, 1029 W. Wolfram, Chicago, IL 60657. NCP (Nov 86)

Mind Over Mac features five games. Entertainment for the whole ★★★★ family. Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

MoonMist is Infocom's latest introductory level text adventure ★★★ game. This is a typical haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $39.95. Infocom, 125 Cambridge-Park Dr., Cambridge, MA 02140. NCP (May 87)

NewGammon is animated backgammon that will challenge even ★★★★ good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional ★★★½ football. Comes on two disks, one with program and system, the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of ★★★★½ controls, intelligent on-board computer with speech capabilities, real-time graphics and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-★★★½ average puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Patton vs. Rommel is traditional-style strategic wargame. It ★★★★ covers events in Normandy in 1944. While complex, it's well designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

The Pawn is an unusual British interactive adventure game with ★★★½ text and graphics. The unique interface has some drawbacks, but *The Pawn* has humor, social satire, is entertaining and is challenging. $44.95. Requires a Mac+. Firebird, PO Box 49, Ramsey, NJ 07446. CP (Mar 87)

Pinball Construction Set lets users create their own pinball ★★★★ games, as elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 86)

Portal is an intriguing science fiction novel for kids that suffers ★★★ from having a poor interface. Storyline: all of humanity is missing and you have to search through a data base for files that reveal the mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. $49.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Oct 87)

Puppy Love is a combined game and teaching tool. As you teach ★★★★½ your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

Real Poker is five-card draw against five other players with Old ★★★★½ West names, distinct personalities and playing styles, in a saloon setting. $39.95. Henderson Associates, 980 Henderson Ave., Sunnyvale, CA 94086. CP

Analyze numerical data easily with advanced 3-D technology!

The power of advanced graphic display technology gives you a revolutionary way to analyze data, quickly and effectively.

Rotate data in three dimensions. Animate it. Interact with it. Find trends, patterns and visual structures not evident using traditional two-dimensional plots, summaries or lengthy printouts.

MACSPIN is a full-featured point-and-click program. You can highlight categorical data, pop up background information, identify any data point, zoom in, edit and transform data downloaded from mainframes or virtually any database program.

MACSPIN speeds up your analysis of any numerical data, simple or complex, such as voter demographics, nuclear spectra, seismic reflections, or enlistments in the armed services.

MACSPIN, the only way you will want to look at data again.

$199.95 with full documentation
Demo disk, $10. VISA/MC/AMEX, CODs, POs
60-day money-back guarantee

Available at your software dealer, or call or write: D²Software, Inc.
3001 N. Lamar Blvd., Suite 110, Austin, TX 78705
512/482-8933

D²SOFTWARE

MACSPIN™

Requires a MACINTOSH 512K, PLUS, SE, or MACINTOSH II

MACSPIN is a trademark of D²Software, Inc.
MACINTOSH is a trademark of Apple Computer, Inc.

Please circle 176 on reader service card.

MINIFINDERS

Seven Cities of Gold is an educational program masquerading as ★★★★ an adventure game; and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 87)

Shadowgate is an icon-based graphic adventure. You, as the seed ★★★★★ of prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound and adventure. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Sep 87)

Shanghai challenges players to clear a board of all 144 tiles, by ★★★★★ matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Nov 86)

Skyfox is a sophisticated 3D shoot-em-up. You're fighting tanks, ★★★ planes and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Smash Hit Racquetball is an accurate and entertaining simula- ★★★★½ tion of a day on the courts. Digitized sound adds to the realism. Includes a hard disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Space Quest is a three-dimensional, animated adventure in which ★★★★ you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. Sierra On-Line, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Strategic Conquest is a large scale, strategic conflict on the ★★★★ Mac. This very involved war game will be enjoyed by those who like this genre. $59.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. CP (Dec 85)

Tass Times in Tone Town is a slightly off-the-wall graphic ★★★½ adventure in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. $44.95. Activision, PO Box 7287, Mountain View, CA 94039. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working ★★★★ model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child to build. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Ultima III allows up to four characters to cooperate to explore the ★★★★½ vast wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely ★★★★★ haunted mansion. Since you access the parser by double-clicking, command choices are always visible—you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86)

Winter Games lets up to eight players compete against each other ★★★★ in Olympic events including figure skating, bobsledding, biathlon and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr.,

A GOOD STORY IS WORTH REPEATING...

Especially if it's about your product!

Why let your story remain hidden in a back issue of one of the world's leading computer magazines?

Let us take your article to its highest level of marketing potential with a reprint! This is one of the most valuable marketing tools you have on hand because:

- It represents unbiased coverage of your product by America's leading computer magazine!
- It clearly discusses your products features and capabilities!
- It is one of the most effective ways of telling your story to new customers, retailers, jobbers and distributors.

To find out how you can have your article or review elegantly reprinted**on 80 lb. paper stock, in 4-color, 2-color or 1-color, call or write today: Jennifer Locke —Reprints Manager; Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016, 212-503-5447.

**Minimum quantity 500 reprints.

MINIFINDERS

PO Box 8020, Redwood City, CA 94063. CP (Mar 86)

Wizardry is an outstanding dungeon exploration adventure pitting ★★★★★ a party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, 6 Main St., Ogdensburg, NY 13669. CP

WordPlay is a word game with over 50 crossword puzzles for ★★★★ different levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what ★★★★½ amounts to its own programming language. The whole program (language including) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach Software, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Xyphus is a role-playing game pitting four characters (fighters or ★★★★ wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards on the ★★★½ Mac. Comes complete with four greeting cards and matching envelopes. Does not run when connected to a LaserWriter. Requires 512K+. $29.95. Computer Poet Corp., PO Box 7707, Incline, NV 89450. NCP (Jun 87)

Zork II is where the adventure continues in the underground ★★★★½ empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

Zork III is the final chapter in the trilogy. Players come up against ★★★ the ultimate enemy—the Dungeonmaster himself. More closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

MUSIC

ConcertWare+ is an enhanced version of *ConcertWare*. Has ★★★★½ different instruments and can use any four of a set of eight at any point in a piece. Can read and use *ConcertWare* and *MusicWorks* files. $69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Nov 85)

Jam Factory is a program for manipulating MIDI data in real time. ★★★ Absolutely impossible to figure out without a thorough reading of the manual and lots of practice. Requires 512K+, MIDI interface and MIDI synthesizer. $189. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Listen is an educational tool for ear training. It has both a piano ★★★★ keyboard and a guitar fretboard for the student to input notes, and offers a wide range of exercises. It also produces some beautiful sounds. $69. Imaja, PO Box 638, Middletown, CT 06457. CP (Jan 87)

M is a music creation program that uses real time MIDI data. ★★★ Absolutely impossible to figure out without a thorough reading of the manual and lots of practice. Requires 512K+ MIDI interface and MIDI synthesizer. $219. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

MIDIBasic is a simple, but highly useful routine for writing MIDI ★★★★ software. Good stuff. Sketchy documentation. Works with

MacZap & Disk Clinic

Now with Disk Doctor©

Don't let a crashed Disk or Hard Disk Ruin your Day
Install Protected Programs to Hard disk.
Make Backup copies of your Protected Programs.

Bulletin Board Support Available.

Micro Analyst Inc. Visa/Mastercard
P.O. Box 15003 Cod
Austin Tx 78761 (512) 926 4527

Mac Zap with Disk Clinic EIGHT Programs, Two Disks!!	$80
Books	
Protection Book	$30
MFS/HFS Disk Systems	$20
Software Legal Issues	$20
Shipping (Overseas $10)	$03

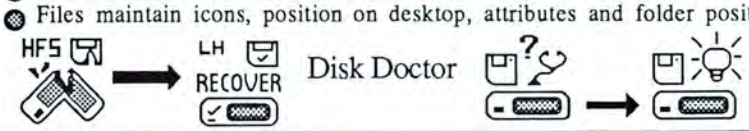
Disk Clinic

Safeguard your files!
Full SCSI Support!
Four Powerful Programs!

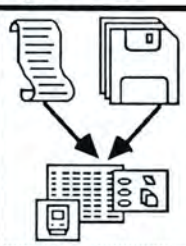
MFS Support Also

Disk Clinic is recommended by the Major SCSI manufacturers as THE program to use for recovering crashed hard disks. We support ALL HFS systems such as Floppies, Hard Disks, and Net Servers like MacServe™!!
.....Every Hard Disk owner should have one.....
If you have a hard disk backup program you need Disk Clinic also!
With this program you should not loose ANY of your important files.

- Work with all HFS Systems. Easy to use, reliable and powerful program.
- Novice Mode, Automatic One Button Recover. Expert Mode for Power.
- THE most powerful Recovery system. We recover, other programs quit!
- Parameter Files for Automatic Recovery in Worst Case Crashes.
- Files maintain icons, position on desktop, attributes and folder position.



MacZap Tools



The most powerful File and Disk Utility available for the Mac. HFS and MFS. Editor. Maps. Dissasembly, Resource List & map, Graphics, File Attributes. Full SCSI Access and Support.

MacZap Patcher

Unlock the power of your Hard Disk. Install protected programs to Hard disk, no Master Key disk needed after install.

Books by Micro Analyst **MFS/HFS Disk Systems**
Disk Structures, Reference material, File & Sector Allocation, Directory Storage, Disk Systems explained.

Software Protection on Micro Computers
Explains how Protection is implemented & removed on Mac, Apple II and IBM. 180 pages spiral bound.

Software Legal Issues for Users & Developers
Software patents, copyrights ,trademarks, court cases etc.

Please circle 143 on reader service card.

maxell®

Packaged 10 Per Box

	2 Boxes	5 Boxes	10 Boxes
3½" Single Side	10.80	10.50	9.95
3½" Double Side	15.95	15.60	14.95

3½" High Density "Call"

Old Reliable the Diskette Connection™

Delaware 1·800·451·1849
P.O. BOX 10247, WILMINGTON, DE. 19850

Oklahoma 1·800·654·4058
P.O. BOX 1674, BETHANY, OK. 73008

Nevada 1·800·621·6221
P.O. BOX 12396, LAS VEGAS, NV. 89112

Minimum Order $25.00 · Visa, MasterCard accepted · C.O.D orders add $3.00 · Surface Shipping: on 3.5 or 5.25" add $3.00 per 100 disks. 8" add $4.00 per 100 disks. UPS delivery only. U.S. mail for APO, FPO, AK, HI or PR add an additional 5% for PAL. Prices subject to change without notice!

SONY®

Packaged 10 Per Box

	2 BOX	5 BOX	10 BOX
3½" Single Side	10.95	10.70	10.30
3½" Double Side	15.95	15.70	15.30

3½" High Density "Call"

SONY, without labels OR box

Packaged in Fifties

MAC-PAC-50's

	50	100	400+
3½" Single Side.	1.06 ea.	1.00 ea.	.92 ea.
3½" Double Side.	1.34 ea.	1.26 ea.	1.20 ea.

Old Reliable the Diskette Connection™

Delaware 1·800·451·1849
P.O. BOX 10247, WILMINGTON, DE. 19850

Oklahoma 1·800·654·4058
P.O. BOX 1674, BETHANY, OK. 73008

Nevada 1·800·621·6221
P.O. BOX 12396, LAS VEGAS, NV. 89112

Minimum Order $25.00 · Visa, MasterCard accepted · C.O.D orders add $3.00 · Surface Shipping: on 3.5 or 5.25" add $3.00 per 100 disks. 8" add $4.00 per 100 disks. UPS delivery only. U.S. mail for APO, FPO, AK, HI or PR add an additional 5% for PAL. Prices subject to change without notice!

Please circle 279 on reader service card.

MINIFINDERS

both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87)

Music Mouse is a music program in a genre all its own. Called an ♪♪♪♪♪ "intelligent instrument," *Music Mouse* gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. $59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer is a strong contender for the high-end of the MIDI ♪♪♪♪ sequencer market. Only those experienced with MIDI should get this. Files can be transported to *Professional Composer* for editing. No direct track or segment looping. $295. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP

Practica Musica uses an interactive game and practice approach ♪♪♪♪ to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords and melodies. Requires 512K. $59.95. Periscope Press, PO Box 6926, Santa Barbara, CA 93160. CP

Professional Composer is aimed at music professionals. Pro- ♪♪♪ duces performance-quality sheet music; has only limited playback facilities. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Prem)

Studio Session consists of two programs, an Editor and a Player, ♪♪♪♪½ that produce music with six voices of digitized sound. Excellent program plus good manual make this a good buy. $89.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430. CP (Dec 86)

HARDWARE & ACCESSORIES

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard ♪♪♪♪♪ disk with a unity interleave and average access time of 18 msec. Holds 140 M. Help, file transfer and tape backup commands built in. $2995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1 and 2M sizes. ♪♪♪ Connects to a serial port. Speeds up operations 200 to 300%. Can be used as a printer buffer. Works with all Macs. 512K, $395; 1M, $450; 2M, $545. Western Automation Laboratories, PO Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI ♪♪♪♪ hard drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. $1899. SuperMac Technology, 295 N. Bernardo Ave., Mountain View, CA 94043.

FX-20 is a good 20-meg external hard drive. Good utility software. ♪♪♪♪ Reliable, and reasonably quiet. Sits next to Mac, has a large, oddly shaped case. Requires SCSI port, 512K+, new ROM. $1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly ♪♪♪♪ noisy unit. Good utility software, but no backup yet. Requires cable and terminator ($80). Requires SCSI port, 512K+, new ROM. $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

MacBottom 45 SCSI and Internal Modem has a modem that fits ♪♪♪♪½ into the top half of the 45-megabyte SCSI hard drive case. Comes with *HFS Backup* and *Eureka*. Does not work with a Mac II. $1795. Personal Computer Peripherals Corporation, 6204 Benjamin Rd., Tampa, FL 33634. (Oct 87)

MacBottom HD21 is a very low (about 2 inches high), external 20- ♪♪♪♪♪ meg hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including *HFS Backup*. Requires SCSI port, 512K+, new ROM. $1195. PCPC, 6204 Benjamin Rd., Tampa, FL 33614. (Feb 87)

MacCharlie's components slip around the Mac and convert it into ♪♪♪♪ an IBM PC clone. Amazingly, it works well. The enlarged keyboard has a few bugs but is a joy to use. $995. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

MINIFINDERS

MacIntizer is a graphics tablet and absolute positioning device ★★★★ that replaces the mouse. Various scales are possible. $599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacNifty Sound Digitizer turns ordinary analog sound input into ★★★★½ digital waveforms which can then be manipulated using the *SoundCap* software it comes with. Capable of truly stunning effects. Requires 512K+. $129.95. Impulse, 6870 Shingle Creek Pkwy., Minneapolis, MN 55430.

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The ★★★★ board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. $399. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. (Jun 87)

MacTablet is a stylus-driven graphics tablet. Users can easily ★★★★ sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. $495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that ★★★★ allows a full range of swiveling and tilting. Very strong, this well made unit is also very easy to use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for ★★★★ input. Capable of extremely fine results and special effects. Easy to use and well documented. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Magic Digitizer is a hardware digitizer that works with video ★★★★ cameras. With *LaserMagic* software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with *Magic* software, $399.95; *LaserMagic* software, $49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May 87)

Mouse Mover is a mouse pad-type surface that snaps on to the ★★★★½ bottom of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311.

Moustrak is a fabric covered foam mousing pad. It will increase ★★★★ the efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NoLabelSystem is a plastic permanent labeling system in which ★★★★ users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac ★★★★½ Plus. Adds 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $395. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

PhoneNET is an AppleTalk-compatible network. Network can be up ★★★★★ to 3000' in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86)

SuperRam 2 and SuperRam 4 are 2- and 4-megabyte RAM ★★★½ upgrades. Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. $499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct 87)

ThunderScan replaces the ribbon cartridge in an ImageWriter, ★★★★ which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. $249. Thunderware, 21 Orinda Way, Orinda, CA 94563.

CDA computer sales

MAILORDER WORLDWIDE

Ad #1036-10

MACINTOSH II GRAPHIC SYSTEM
with 20 Megabyte Hard Disk

- **Macintosh II** Hard Disk 20
- **Apple** Extended Keyboard with mouse
- **Macintosh II** Video Card
- **Apple** Hi-Resolution Monochrome Monitor
- **Imagewriter II** with cable
- **Maxell Diskettes** Box of 10
- **Computer Paper** (1600 Sheets)
- **Covercraft Dust Cover** for Mac II and Imagewriter
- **Perfect Data** Head Cleaning Kit

Suggested list price $6634
When Ordering Specify Package #8760

Now Only $5099

Macintosh SE SUPER SYSTEM

- **Macintosh SE** with 1 Megabyte
- **Macintosh** Keyboard and Mouse
- **Imagewriter II** with cable
- **Maxell** Box of 10 Diskettes
- **Covercraft** Dust cover for Macintosh
- **Covercraft** Dust cover for Imagewriter
- **Perfectdata** Head Cleaning Kit

Now $2699

- When ordering specify package #8719
- When ordering with 20 Meg Hard Drive Specify package #8720

Now Only $3319

Mac II Hardware		Apple		Kensington	
Macintosh II w/ext Keyboard	$3149	Macintosh Plus	$1649	SystemSaver Mac	$ 69
Macintosh II 40 w/ext Keyboard	$4399	Macintosh External 800K	$ 319	Turbo Mouse 512/Plus	$ 89
Mac II Video Display Adapt	$ 399	Apple 3.5 Drive Platinum	$ 319	Turbo Mouse Mac/SE	$ 89
Mac II Video Expansion Kit	$ 129	Apple Hard Disk 20SC	$1099	MacTilt/Swivel	$ 29
Mac II Monochrome Monitor	$ 329	Apple Hard Disk 40SC	$1599	Printer Muffler 80	$ 49
Mac II RGB Monitor	$ 799	Apple SCI Tape Backup 40	$1599	**MacMemory Inc.**	
PC 5.25 Drive	$ 329	Macintosh SE w/ keyboard	$2199	TurboMax Accelerator 512E/Plus	$ 939
Mac II Drive Card	$ 109	Macintosh SE20 w/ keyboard	$2849	MaxPlus - 2MB	$ 359
AST Research		Imagewriter II w/ cable	$ 479	MaxPlus - 2x4	$ 559
AST Mac 286	$1079	Image II Cut Sheet Feeder	$ 179	MaxPlus - 2x4-SE	$ 639
AST-PAK 1 MEG/SE	$ 389	LaserWriter	$3799	MaxPort SCSI/ Mac 512K	$ 139
AST-ICP-Comm processor	$ 749	LaserWriter Plus	$4499	Mac Chill Fan	$ 39
AST ICP-4 Comm Processor	$ 799	**AST Research**		**Mirror**	
AST 1MB Expansion Board	$ 649	AST Mac 86	$ 429	Magnum 800K Drive	$ 229
AST 2MB Expansion Board	$ 859	AST Turboscan	$1599	**Rodime**	
AST 3MB Expansion Board	$1079	**Central Point**		20 Plus External	$ 799
AST 4MB Expansion Board	$1295	800K Drive	$ 185	20 Plus Internal	$ 899
Sigma Designs		**CMS Hard Drives**		45 Plus External	$1199
Laserview 15" Monitor/Card	$1365	20 Megabyte SCSI 65ms	$ 595	45 Plus Internal	$1269
Laserview 19" Monitor/Card	$1739	40 Megabyte SCSI 29ms	$1095	**Thunderware**	
Sony		80 Megabyte SCSI 28ms	$1395	Thunderscan Mac 512	$ 175
Multisscan RGB Analog 1302	$ 749	Internal 40 SCSI SE 29ms	$ 995	Thunderscan MacPlus	$ 199
		Koala Technologies		**Apple Software**	
		MacVision	$ 179	Mac Draw	$ 149
				MacPaint	$ 99
				MacProject	$ 149
				MacWrite	$ 99
				Switcher	$ 15

ORDER TOLL FREE 800-526-5313

NO-RISK 30-DAY SATISFACTION GUARANTEE If you're not 100% satisfied with any Hardware or Accessories purchased from CDA Computer Sales, we will refund your purchase price 100% no questions asked!

FREE TECHNICAL SUPPORT HOTLINE We support our customers with knowledgable technicians on all products we sell. A Technical Support Hotline is provided for all our customers.

ORDER VIA MAIL - Write: CDA Computer Sales, 31 Marshall Hill Road, West Milford, New Jersey 07480. Please include full name, address, and phone number.

ORDER VIA TELEPHONE - 1-800-526-5313

ORDER VIA COMPUSERVE'S ELECTRONIC MALL - 24 hours a day! GO WOC

FREIGHT - UPS GROUND SHIPPING - Add 2% ($3.50 minimum). UPS BLUE LABEL SHIPPING - Add 5% (two-day delivery $5.50 minimum) APO/FPO SHIPPING - Add 4% ($4.50 minimum). ALASKA, HAWAII, PUERTO RICO - Add 5% ($6.50 minimum). FOREIGN ORDERS - Please call.

MAJOR CREDIT CARDS ACCEPTED - No additional charge! Cashiers Checks, Money Orders, Personal and Company checks accepted. NO COD's please!

In N.J. 201-728-8080
Customer Service 201-728-8082 Mon.-Fri. 9-9 EST Sat. 10-4 EST

Please circle 89 on reader service card.

MacUser MARKETPLACE

HARDWARE

ACCELERATOR BOARDS..
ADD-ON-BOARDS 221
BAR CODE..... 221
CABLES .....
COMMUNICATIONS ... 221
COMPUTER SYSTEMS..... 221
DISK DRIVES 221
DISKETTES 221
ENGINEERING 221
EXPANSION UNITS.....
GENERAL 221
INSURANCE..... 221-222
LABELS .....
MEMORY UPGRADES.. 222
MONITORS .....
NETWORKING 222
PERIPHERALS..... 222
PLOTTERS..... 222
POWER PROTECTION.....
POWER SUPPLIES .....
PRINTERS .....
SECURITY .....
SPEED DEVICES.....

SOFTWARE

ACCOUNTING.....
ARTIFICIAL INTELLIGENCE .....
BACKUP SYSTEMS .....

SOFTWARE *continued*

BUSINESS 222
BUSINESS PROJECT MANAGEMENT .....
BUSINESS TIME MANAGEMENT 222
COMMUNICATIONS. 222-223
COPY PROTECTION .....
DATA BASE.....
DATA ENTRY .....
DATA MANAGEMENT ....
DESKTOP PUBLISHING..... 223
DEVELOPMENT TOOLS .....
EDUCATIONAL 223
EMULATION..... 223
ENGINEERING 224
ENTERTAINMENT/ GAMES..... 224
FINANCIAL 224
FONTS 224
FORMS PROCESSING .....
GENERAL 224
GRAPHICS 224-225
HEALTH.....
INVENTORY .....
LANGUAGE TOOLS.... 225
LAW ENFORCEMENT .. 225
LEASING 225
LEGAL .....
MAIL ORDER .....

SOFTWARE *continued*

MANUFACTURING .....
MEDICAL/DENTAL 225
MULTI-USER-SYSTEMS.....
MUSIC/MIDI 225
NETWORKING .....
ONE-OF-A-KIND.....
OPERATION SYSTEMS ....
PAYROLL..... 226
PREVENTATIVE MAINTENANCE .....
PRINTERS 226
PUBLIC DOMAIN 226
REAL ESTATE..... 226
RELIGION .....
SALES MARKETING.....
SCIENTIFIC .....
SECURITY 226
SERVICES .....
SHAREWARE 226
STATISTICS..... 226
TAXES .....
TERMINAL EMULATION.....
TYPESETTING 226
UTILITIES .....
WORD PROCESSING.....
WRITING TOOLS 226

MISCELLANEOUS

ACCESSORIES 227
BAR CODING .....
BUSINESS OPPORTUNITIES .....
CAD CAM .....
CATALOGUES.....
COMPUTER INSURANCE 227
COMPUTER LEASING.....
COMPUTER SERVICES ....
COMPUTER TRAINING....
CONSULTANTS .....
CONVERSION SERVICE ...
DATA CONVERSION .....
DESKTOP PUBLISHING SERVICE..... 227
DIGITIZERS.....
DISK CONVERSION.....
DISKETTE COPY SERVICE 227
EMPLOYMENT OPPORTUNITIES .....
FURNITURE.....
INSURANCE .....
LABELS 227
MAILING LISTS 227
NETWORKING 227
NOVELTIES..... 227
PUBLICATIONS 227
SCANNERS 227
SUPPLIES..... 227
USED EQUIPMENT .....

Advertising Rates and Information:
MacUser Marketplace

MacUser Marketplace is a special economical section for product and service listings.

Advertisements are grouped by category and sold by column inches. Second color option available.

Standard Directory Listings are also available for a minimum of 3 issues at $225.00 per issue ($675.00 total).

For additional information call 212-503-5115.

Production Manager
Anne R. Brockinton

Production Coordinator
Bessi Dion

MacUser Marketplace Classified Advertising Staff
One Park Avenue, New York, NY 10016

National Advertising Manager
Angelo M. Turco, Jr.

Junior Account Manager
Angela Kiffin

(212) 503-5115

Advertising Director
Kathryn J. Cumberlander

Sr. Advertising Coordinator
Monica Dixon

Sales Manager
Daniel L. Rosensweig

Advertising Coordinator
Linda Annis-Lopez

MacUser MARKETPLACE

HARDWARE/ADD-ON-BOARDS

Save Time with a MAC20 or MAC20MX
68020 Mac upgrades from $595.00

- **User Installable** (clip-on, requires no soldering or cutting)
- **Up to 10 Times faster for business & scientific uses**
- **Support for all Major Languages**
- **Optional 1 or 4 Megabytes of Add-on Memory**
- **Optional 68881 Math Co-processor**
- **30 Day Money Back Guarantee - 6 Month warranty**

Novy Systems Inc., 69 Ravenwood Ct., Ormond Beach, Fl 32074, [904] 427-2358
(Requires Mac 512 Enhanced or MacPlus.)
CIRCLE 244 ON READER SERVICE CARD

HURDLER

Add-on board for the Macintosh II and SE that interfaces to the I/O Channel (68K), PC Bus (8080) or the STD Bus. Developers with existing hardware or peripherals can quickly and easily connect to the new generation of Macintoshes. From the creators of MacForth. Call for info or technical data sheet. Price range from $229 to $499.
CREATIVE SOLUTIONS
4701 Randolph Rd. #12
Rockville, MD 20852
1-800 Forth OK (367-8465)

MEMORY/SCSI/68881 UPGRADE

Upgrade your Mac yourself! With the MacGusto I, you get a total of 1 Meg and a SCSI port. MacGusto II, using 1 Meg chips, has a total of 2.5 Megs and a SCSI port, plus a 68881 coprocessor socket! No memory included, soldering required. MacGusto I—$160, MacGusto II—$219, plus shipping.
MAC ADVANCE
P.O. Box 186
Chanhassen, MN 55317
(815)229-5023

ONE MEGABYTE SIMMS/ACCUSIMMS

Upgrade your Mac Plus, SE, or Mac II by Two Megabytes for $575. These Simm Modules are the newest state of the art plug-ins. AccuSimms let you create bigger data bases, spread sheets, and documents, with plenty of memory leftover. Lifetime guarantee against manufacturing defects. (Dealer Inquiries welcome).
DMS Data Memory Systems
Box 785
Middleton, Mass 01949
(617) 683-2325 Visa or Master Card etc.

BAR CODE

BAR CODE/MAG STRIPE READERS

Bar code and magnetic stripe (credit card) readers for the Apple Macintosh are available separately or in a single compact unit. All readers connect between the keyboard and the Macintosh, and require no additional software or port. A powerful but simple program for printing Code 39 bar codes is also available.
TPS ELECTRONICS
4047 Transport Street
Palo Alto, CA 94303
(415)856-6833

COMMUNICATIONS

MAC2624 TALKS TO THE HP3000!

With Mac2624, your Macintosh emulates the HP2624, HP2392, HP2394 block mode CRTs. running HP3000 software reliably and elegantly. Mac2624 implements all HP modes, parameters, keyboard features, and display characteristics within the ingenious Macintosh mouse menu, command-key environment. Intelligent, ultra-fast file transfer, text graphics conversion options.
TYMLABS CORPORATION
211 East 7th Street
Austin, TX 78701
(512)478-0611

COMPUTER SYSTEMS

ONE-STOP SERVICE
for the Macintosh Business System
Customized bundle software/hardware packages for desktop publishing, communications, office and data base management and small business accounting.
Priced at Competitive Mail Order Prices!
Pacific Prime Trading Co.
2612 Artesia Blvd. #B
Redondo Beach, CA 90278
(213) 376-5820
FAX: (213) 871-2112 • Easylink EIC050242
CIRCLE 246 ON READER SERVICE CARD

DISKETTES

DISKETTE
BOXED **33¢**
BULK **26¢**
Boxed Diskettes are pkgd 10 to a plain white box and include sleeves, labels, & Hub ring. 100% error free. Lifetime warranty. Major US Mfrs.
Your cost **$3.30/box**
Add $3 per 100 diskettes for shipping & handling
(213) 479-0345
Data Bureau Inc.
1731 So. LaCienga Blvd.
Los Angeles, CA 90035
5¼ DSDD Sleeves 2c
Labels & Tabs 2c
5.25HD 3.50SS 3.50DS **.99¢**
CIRCLE 168 ON READER SERVICE CARD

QUALITY DISKETTES
INTRODUCTORY OFFER

3½" DS-DD 100% Certified Lifetime Warranty Major Mfg.	**$1.10 EA.**
3½ DSDD	**$1.37 ea.**
5½ DSDD	**35¢ ea.**
Colored 3.5" in 5 diff. colors	**$1.59 ea.**

Shipping $4 per 100 diskettes
Order by phone or send your check to:
AMERICAL GROUP
(818) 906-1132
14200 Ventura Blvd. Ste. 201
Sherman Oaks, CA 91423
CIRCLE 255 ON READER SERVICE CARD

MacUser Marketplace
Standard directory listings available for a minimum of 3 issues at **$225.00** per issue (**$675** total).
Call **(212) 503-5115**

Lisa/Mac XL Users

Many New Products for Power Computing!
20Mb HD for Lisa 2 or Mac XL/ RAM Upgrades/ HFS
Full Technical & Networking Support Available!
Call our Toll Free Hotline for Latest Product Info.
Dafax Hotline • 800•782•7823
Orders & Info 800•323•1751
In Penn. Call 215•574•0357
Dafax•14 North Dr., Malba NY 11357

CIRCLE 245 ON READER SERVICE CARD

DISK DRIVES

QUALITY DRIVES/TAPE/MODEM

1200 baud, auto dial, etc, cable, software, speaker, $170. Reliable, 2 years warranty, Drives for Macintosh 20/40 mb $560/$1025. Mac SE ext. 20/40 mb $609/$1050. MacII call. 80-900 mb also available! 30 mb $799. Mac Tapes 20/40/60 mb $729/$849/$1099. 1 year warranty by $80 million company. Prices good for first 2000 sold only. Others.
IBNC
1919 E. Romneya, Suite 317
Anaheim, CA 92805
(714)635-7825/533-9837 Ext 43

ENGINEERING

MICROPROCESSOR DEVELOPMENT

Macintosh-based absolute cross-assemblers and editor for popular MPUs:
• 68HC11 1802/05 • 6805/HC05/146805 • 6804/HC04 COPS400 • 6800/01/02/03/08 6301/6303 • 6809/6309 • 8048/C48/49/50 • 8051/C51/52 • 6502/C02/C00 Fast. Macros and conditional ass'y supported. Generates S or Hex records. US$99.95 each (specify MPU series) + $4s/h. Literature avail. MC/V/COD/Check.
MICRO DIALECTS, INC.
Dept MU10, PO Box 30014
Cincinnati, OH 45230
513-271-9100

GENERAL

YOUR MAC SOURCE

Dataframe—20, 40, XP from SuperMac Technology. Rodime —20, 45, internal or external (Superfast - 28MS). We are your source for all the most popular Macintosh products, including software, diskettes, peripherals, Mac cases, books, networking and consulting. Call us today!
YOUR MAC SOURCE
5600 Roswell Rd. Prado N.
Suite 264
Atlanta, GA 30342
(800)367-7552; (404)843-2267

INSURANCE

INSURE YOUR COMPUTER

Safeware provides full replacement of hardware, media and purchased software. As little as $39 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat. 9 to 5).
SAFEWARE, THE INSURANCE AGENCY INC.
2929 N. High Street, P.O. Box 02211
Columbus, OH 43202
(800)848-3469 (NAT) or
(614)262-0559 (OH)

INSURANCE *category continued on next page*

MacUser MARKETPLACE

INSURANCE

DATA SECURITY INSURANCE

The "all risk" Personal Computer Policy from DSI includes essential coverages not available with other policies: protection against loss of data (even from accidental erasure), loss of custom programs, and fraud. As low as 35.00/year. Coverage can be bound by telephone 9-4 Mtn time.

DATA SECURITY INSURANCE
4800 Riverbend Rd., PO Box 9003
Boulder, CO 80301
(800)822-0901 ; (303)442-0900

MEMORY UPGRADES

MEMORY UPGRADES

Upgrade your 128K MAC to 512K, 1024K or 2048K of memory. Factory flow solder techniques used for high reliability. Upgrade kits also available for the MAC PLUS, MAC SE and the MAC II. 180 day warranty. SCSI ports and 800K internal drives with 128K ROM's are also available. Call for pricing and information. Dealer inquires are welcome.

MAC MEMBRAIN
P.O. Box 1566
Evanston, WY 82930
800-443-0759

NETWORKING

PhoneNET SYSTEM

The PhoneNET System creates an AppleTalk network with the convenience, added distance, and flexibility of telephone wire. PhoneNET supports AppleTalk, and can use standard telephone cabling, even existing wiring. Components of the system include the PhoneNet PLUS Connector, the PhoneNET StarController, the TrafficWatch network analysis package, and the PhoneNET CheckNET desk accessory. Please contact us for a dealer near you.

FARALLON COMPUTING
2150 Kittredge Street
Berkeley, CA 94704
(415)849-2331

ETHERNET FOR THE MACINTOSH

Kinetics provides Ethernet hardware and software for all Macintosh computers. Products include:

- FastPath:An AppleTalk -Ethernet gateway.
- EtherSC: A SCSI-Ethernet controller.
- EtherPort SE: An internal Ethernet option card for the Macintosh SE.

All products are AppleTalk software compatible. Support for TCP/IP and other protocols is available.

KINETICS, Inc.
2500 Camino Diablo Suite 110
Walnut Creek, CA 94596
(415)947-0998

COMMUNICATIONS
category
continued on next page

NETWORKING

SUNOL SYSTEMS FILE SERVER

Sunol Systems SUN*MUFS (Multi User File Server) AppleTalk compatible file server for Mac. SUN*MUFS allows multiple users to access same file simultaneously, providing inexpensive solution to networking your Mac environment. SUN*STREAK model features SCSI interface for MAC SUN*DISK networks Apple, IBM, Epson, DEC, Wang, etc. From 21M to 245M.

SUNOL SYSTEMS INC.
1177 Quarry Lane
Pleasonton, CA 94566
(415)484-3322

PERIPHERALS

MacSoft
Your Mail Order Alternative

Super Paint	$54.95
WriteNow	$98.95
Reflex	$58.50
Trapeze	$176.95

EVEREX Hard Drives

EMAC-20D 20 Megabytes	$599
EMAC-40D 40 Megabytes	$995
EMAC-60T 60 Megabytes	$839

3.3 Meg/Min. Formats on the fly

Mac SE Carrying Case	$83.95
MacPlus Carrying Case	$64.95
Mactilt & Mactilt SE	$58.95

Don't See It Call!
(216) 543-1952

No Hidden Costs

Valley Computers' MacSoft
16744 W. Park Circle
Chagrin Falls, OH 44022
VISA MC

CIRCLE 257 ON READER SERVICE CARD

PLOTTERS

PLOT-IT

Plots MacDraw, MacDraft, MacProject, MacPaint, etc. on popular Apple, Hewlett Packard or Houston Instruments pen plotters in sizes A,B,C,D and E. Use for accurate engineering and architectural drawings or color data plots. Flexible color interface and scaling. Version 2.04 now shipping. $125.

MESA GRAPHICS
P.O. Box 600
Los Alamos, NM 87544
(505) 672-1998

MacUser Marketplace . . .
To place your ad
call **(212) 503-5115**

SOFTWARE/BUSINESS

BUSINESS & HOME ACCOUNTING

Pybls, Rcbls, Billing, Banking, P & L, Net Worth, Lists, Purchase Order, Rcbl & Pybl invoices, Tax Reports, Creditor & Client Acct's, Inventory, up to 5 sales taxes, more. Tracks up to 7 enterprises, personal & Sched A expenses & income, up to 10 bank accts. Pkg ideal for concurrent small business & home. Don't let the $59.95 price fool you. 512e & up w/HD. NCP

A.H. NUSSELL SR.
1606 NW 21st St.
Gainesville, FL 32605
(904)372-0066 No Chg Cards

PAYROLL-GENERAL LEDGER

CheckMark PAYROLL & AMS GENERAL LEDGER are full-featured accounting programs for $195 ea. PAYROLL calculates all employer and employee taxes. Prints checks & W-2s. User modifiable tax tables. GENERAL LEDGER has extensive reporting capabilities. Profit centers, budgeting, previous year balances. Performs in business-like, straight forward manner. Demo's $15.

CHECKMARK SOFTWARE, INC.
P.O. Box 860
Fort Collins, CO 80522
(800)426-2466 ext. 338

OMNIS 3 + APPLICATIONS

OmmniPay - A total payroll accounting program for any size company. Does all Gov't reports, handles 401(k) and multiple states. User modified tax tables, deduction fields, and more. In use for 2+years. $79.95. Omnimailer - A mailing list manager with no limits. Signals duplicate names $49.95. Add $3.00 S&H for each library.

JANAC ENTERPRISES
PO BOX 394
Hebron, IL 60034
(815)648-2492

Business-TOOLS™ for Omnis 3+

The How-To approach to learning Omnis 3+. A complete customer/inventory/invoicing application demonstrates the best Omnis tricks-Arrays, EDWC, Menu's and more-to use in your own programs. The mysteries of Omnis explained for only $299.95 Money-Back Guarantee. MC/V

WORKING COMPUTER
PO Box 86602
San Diego, CA 92138
(619)483-1453

Business Management

INVue is a flexible template for the relational database, OverVUE. Ideal for service businesses, INVue maintains client and vendor data, generates invoices, manages receivables, payables, scheduling and equipment files. Numerous user-customized reports. Free Brochure. Demo $24.95. INVue without OverVUE $199.95

HindSight
P.O. Box 11608
Denver, CO 80211
(303)458-6372

4TH DIMENSION™ PROGRAMS

BUSINESS MANAGEMENT SOFTWARE for MEDICAL LEGAL & SALES PROFESSIONALS

- Point of sale
- General Ledger
- Inventory
- Telemarketing
- Direct Mail
- Cost Analysis

Generic modules from $499 Customizing available. ALSO CMS and DATAFrame from $579 & $699 VISA & MC accepted.

MacSolutions
241 12th St
Delmar, CA 92014
(619) 481-0479

BUSINESS TIME MANAGEMENT

TIME BILLING

TimeMinder™ is a professional time billing & productivity tracking program that uses the Macintosh clock to eliminate manual time logs. Weekly or monthly reports and invoices are made available w/hourly charges or job costs. Great for office productivity analysis, legal billing, typesetting billing or staff computer usage. Now available for $139.

AATrix Software
405 Bruce Avenue
Grand Forks, ND 58201
(701)746-7202

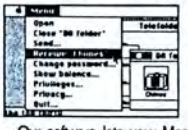
COMMUNICATIONS

MAC-3000 TERMINAL EMULATOR

MAC-3000 provides users with full terminal emulation of a Hewlett-Packard 2392 A Block Mode Terminal. Features also include Macterminal compatibility for the IBM 3278 and DEC VT102 terminals. Additional features are key equivalents for HP screen commands file transfers, extended screen memory, mouse oriented cursor positioning and more. Retail price $150.00

THE NETWORKERS
8 Mariposa Ave.
San Anselmo, CA 94960
(415) 454-7067

Telefolders



A national electronic information service for Mac users only.

Our software lets your Mac and modem access our public data base using only standard icons, windows, and pull-down menus. Browse, upload and download, with just a click of the mouse. No commands to learn, no typing to do. Over one year old. $49.95 gets you a complete starter kit, access time included.

Semaphore Corporation, 207 Granada Dr, Aptos, CA 95003, (408) 688-9200.

CIRCLE 295 ON READER SERVICE CARD

MacUser MARKETPLACE

COMMUNICATIONS

TEXTTERM GRAPHICS

A new, fast, flexible DEC VT100 text emulator and Tektronix (4014, 4105) graphic emulator. Reverse scroll: transfer text, tables, graphics (Paint/Pict): high quality color printing/plotting: file shipping: editor for correcting/electronic mail. $195. Limited offer (exp. Aug. 31, 1987): $25 upgrade from any currently marketed communications software. Send payment & masterdisk.
MESA GRAPHICS
P.O. Box 600
Los Alamos, NM 87544
(505) 672-1998

EDUCATIONAL

FREE MAC EDUCATIONAL CATALOG

Featuring: MICROGRADE - grade keeping. Easy course set-up, large class size, 100 assignments, personalized grading. Prints statistics/various reports. MICROTEST II - create, update, generate and store exam materials. Easy question entry, large data-base, multiple test versions, separate answer keys. $95 each. $5 demos. AND MORE MAC TITLES!
CHARIOT SOFTWARE GROUP
3659 India Street MU#2
San Diego, CA 92103
(800)CHARIOT (619)298-0202

ALGEBRA HOMEWORK TUTOR

Revolutionary HomeworkTutor™ lets you do your Algebra homework or classwork on a Mac. Checks each step you enter, gives hints, poses practice problems, solves and explains examples, and prints completed homework. Easy editing. Standard Mac Interface, and too much more to tell. Send for free brochure.
MISSING LINK SOFTWARE
Box 3280
South Amboy, NJ 08879
(201)721-2569

NEW FOR '87—COURSE BUILDER

Create standalone courseware for teaching, training and testing with the click of the mouse. Built-ins include drawing, painting, animation, voice, music, grading, intelligent branching and text-numeric mouse inputting capabilities. Free brochure and CompuServe demonstration. Ships May 1987. $300.
TELEROBOTICS™ INTERNATIONAL, INC.
8410 Oak Ridge Highway
Knoxville, TN 37931
(615)690-5600

DESKTOP PUBLISHING

MACPALETTE

MacPalette by Microspot enables you to print multicolored pictures and text from existing Macintosh software using the ImageWriter II. MacPalette will colorprint existing documents from MacDraw, MacDraft, MiniCad, MacProject, MacWrite, JAZZ, Microsoft Chart, Word, etc. (not MacPaint). It prints black as true black instead of mixing a black. $69.
COMPSERVCO
800 Freedom Lane
Slidell, LA 70458
(800)272-5533 OR (504)649-0484

LINOTRONIC 300 SERVICES

Desktop Publishers, L300 output as low as $3.50 per page. All major Mac page programs, Ventura, PC PageMaker. RC paper & film. Dealer for Adobe fonts, Adobe Illustrator, Quark Xpress. Call 1-800-626-2721 Ext. 1601
HIGH TECH TYPE, INC.
1601 South Main, Ste. 410
Tulsa, OK 74119
918-587-5023

Interactive PostScript

Program PostScript™ interactively over AppleTalk using the PostHaste™ integrated programming environment. Full-featured editor, separate error message capture window, & fast up-loader with no file size limit. Great for the beginner, essential for the serious PostScript programmer! $59.95
MICRO DYNAMICS, LTD., Dept.U
8555 Sixteenth Street, Suite 802
Silver Spring, MD 20910
(800)634-7638 or (301)589-6300

Best Testing System!

LXR•TEST brings desktop publishing to test generation! Combining graphics, word processing, and database management; **LXR•TEST** enables you to produce tests easier and better than ever - we guarantee it! Everyone that frequently generates tests deserves the productivity **LXR•TEST** can bring. See why **LXR•TEST** has been claimed as the "best educational testing tool on the market!"

- **Logic eXtension Resources**
  9651-C Business Center Drive
  Rancho Cucamonga, CA 91730-4537
  (714) 980-0046

CIRCLE 294 ON READER SERVICE CARD

SOFTWARE FOR KIDS

With MATCH-ON-A-MAC your pre-K to 2nd grader can work with 11 entertaining games matching letters, numbers, pictures, shapes and quantities. A unique Lesson Plan option allows you to individualize each computer session. Also includes a Report Card option and manual. 128K or larger. $39.95, $2.50 s/h.
Teach Yourself by Computer Software
2128 W. Jefferson Road
Pittsford, NY 14534
(716) 427-7065
CIRCLE 259 ON READER SERVICE CARD

EMULATION

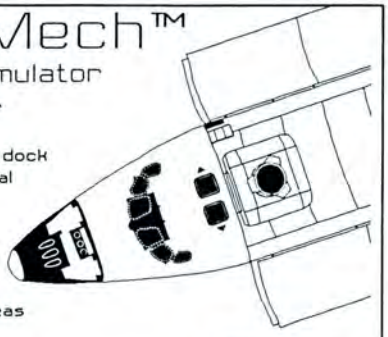
IIT IN A MAC© -NEW VERSION 2.5

Run Apple II software on a Mac and still use DAs and Cut & Paste to the Clipboard. Transfer Apple II disks to the Mac by cable or phone. Use UniDisks directly with Mac drives. Convert AppleWorks or any Apple II data file into standard Mac text files. Develop software using Apple II Basic and ML. Full 65C02 debugging system built-in. Not copy protected. $149.95
COMPUTER: applications, Inc.
12813 Lindley Drive
Raleigh, NC 27614
(919) 856-1411

Orbital Mech™

A SpaceFlight Simulator
by Dale M. Greer

Maneuver, rendezvous, & dock in an alterable gravitational environment



Not Copy Protected!
512K minimum
$34.95 U.S. plus
$3 s/h No. Am., $8 overseas

Creative Solutions, Inc.
4701 Randolph Road, Suite 12
Rockville, Maryland 20852
1-800-FORTH OK (a.k.a. 367-8465)
Payable by check, m.o., VISA, MasterCard, or American Express.

Booth 621
MacWorld Expo,
Boston, '87

CIRCLE 260 ON READER SERVICE CARD

Advertising Rates and Information: MacUser Marketplace

MacUser Marketplace is a special economical section for product and service listings.

Advertisements are grouped by category and sold by column inches. Second color option available.

Standard Directory Listings are also available for a minimum of 3 issues at $225.00 per issue ($675.00 total).

For additional information call 212-503-5115.

Very High Quality Clip Art Illustrations

In PostScript & Encapsulated PostScript

Each issue of Click & Clip™ is packed with Business, Seasonal, Sports & many timely Illustrations. Send check to: Studio Ad Art, P.O. Box 18432-52 Las Vegas, NV 89114. 1 issue $39.95; 2 issues $67.00; 4 issues (full year) $124.50.
Orders Only Call (800)235-6646 ext.227; in Calif. (800)235-6647 same ext.

CIRCLE 169 ON READER SERVICE CARD

MacUser Marketplace . . .
To place your ad call **(212) 503-5115**

POWERMATH

PowerMath is computer algebra for the Macintosh. Type your problem, using conventional math notation, and PowerMath will solve your calculus, algebra and matrix problems. PowerMath does factorials, summations, simultaneous equations, plots, Taylor series trigonometry and allows unlimited number size. It's your math slave for $100.
CENTRAL PRODUCTS CORP.
2211 Norfolk, Suite 518
Houston, TX 77098

MacUser MARKETPLACE

ENGINEERING

FORTRAN/MCFACE 3.0/MATLAB

McFace—complete Mac interface as standalone subroutine. Rapid access to DAs, file handling, editing, dialogs, printing, $40. MacMATLAB—interactive, programmable linear algebra program with 2D/3D plotting using McFace. Multiplies, inverts matrices, finds eigenvalues, roots of polynomials, etc., $50. Tools 3.0 - documented modular source code for complete editor, $119.
MCFACEWARE
1310 N. Broadway
Urbana, IL 61801
(217)328-5842

STRUCTURAL ENGINEERING

Powerful, easy-to-use analysis programs with design aids for beams, 2-D frames, trusses: BEAM MAC, BEAM MAC II, FRAME MAC. Fully interactive. Structure, loading, tension, shear, moment, deflection diagrams, input & output texts. Section table, more. From $145 to $595. Money-back guarantee. Free support. 400K demo, 800K Guided Tour available.
EREZ ANZEL SOFTWARE
113 McCabe Crescent
Thornhill, Ontario L4J 2S6 Canada
(416)738-4601

MGMSTATION—PRO CAD FOR MAC

by Micro CAD/CAM, Inc. is a high powered CAD program for the Mac similar to Autocad. MGMStation boasts over 140 powerful functions including: XY coordinate, polar or digital data input, 100 power zoom, accuracy to 4 decimals, tangent drawing tools and much more! $799. Demo disk and/or VCR tape available.
COMPSERVCO
800 Freedom Lane
Slidell, LA 70458
(800)272-5533 or (504)649-0484

ENGINEERING SOFTWARE

Free 56 pg. catalog and application guide. AC Circuit Analysis • DC Circuit Analysis • Signal Processing • Active Filter Design • Passive Filter Design • Root Locus • Transfer Function Analysis • Logic Simulation • Engineering and Financial Graphics Programs. Visa/MC Accepted.
BV Engineering
2200 Business Way Suite 208
Riverside, California 92501
714-781-0252

MINICAD 3.0

MiniCad by Diehl Graphsoft boasts 1000 power zoom, internal symbol library, 40 layers, autodimensioning, double line tool, clip/add/intersect polygons tools, object snap, fillet & trim lines tools, object sizer and locator, 9 decimals accuracy, full 2D and 3D modes and more. MiniCard reads MacDraw, and MacDraft files. $495. Demo available.
COMPSERVCO
800 Freedom Lane
Slidell, LA 70458
(800)272-5533 or (504)649-0484

Digital Logic Schematic/Simulation
LogicWorks™

Standard Features:
- simulates a "live" circuit on screen.
- user-defined device symbols and logic.
- creates and simulates PROMs and PLAs.
- netlist and component list output.
- includes libraries of 7400 and LSI devices and analog symbols

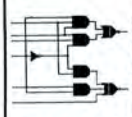
$199.95 U.S.

Programmable Logic Development
LPLC™

New From Capilano Computing
LPLC™ allows a hardware designer to express a circuit in a high-level language, then automatically produces optimal code to burn a PAL™ or other programmable logic device.

LPLC Features:
- Pascal-like language allows binary and integer expressions, state-transitions and truth tables.

$299.95 U.S.



Capilano Computing
545-108th N.E. Suite 6
Bellevue, WA 98004
(604) 669-6343

LogicWorks is distributed by Bonsu
Macintosh is a trademark licensed to Apple Computer, Inc.
MacDraw is a trademark of Apple Computer, Inc.
PAL is a trademark of Monolithic Memories, Inc.
LogicWorks and LPLC are trademarks of Capilano Computing Systems Ltd.

CIRCLE 171 ON READER SERVICE CARD

ENTERTAINMENT/ GAMES

THE DELPHI CHRONICLES

A challenging two disk graphics space adventure based on logic and deductive reasoning. As spaceship commander, you are ordered on a top secret mission requiring you to explore strange new worlds. Contains four levels of difficulty. Demo disk available for $3. Requires 512K or Mac Plus. $39.95. Visa/MC.
DENMARK SOFTWARE
5795 N. River Road
Freeland, MI 48623
(517)799-1700

Tired of Arcade Games?

Now - nine, real simulations:
* Rommel's DESERT WAR *MIDWAY or THE SOLOMONS (carrier actions) *BARBARIAN in Rome's West or EAGLES in the East
* WESTERN CAMPAIGNS or ARMY OF NO. VIRGINIA (Civil War) *NORWEGIAN SEA or U.S. invasion in RED STARS (Us/Soviet clashes). Great for solitaire. $34.95 each or $64.95 for two.
*SJP Enterprises
PO Box 246
McHenry, IL 60050

FINANCIAL

NEW! FOR INVESTORS

Make more profits with PROFITS! Better trade entry and exit timing with fast, powerful, flexible technical analysis and charting program. Trend and momentum studies include moving averages, MACD, stochastics, VA, OBV, RSI, point & figure charts, and more. Loaded with features. Shipping August.
Button-down Software
P.O. Box 19493
San Diego, CA 92119
(619)463-7474

FONTS

1ST QUALITY LASER FONTS

Meticulously crafted fonts for text and display that don't cost an arm and a leg. Serif, sans serif and casual styles. Kerned pairs, AFM files, space controls, numeral superior set, full punctuation. Foreign languages supported. Downloadable and unprotected. New fonts continually developed. Write or call for samples and more information.
EMDASH
P.O. Box 8256
Northfield, IL 60093
(312)441-6699

FLUENT LASER FONTS

Volume 1 through 15 are shipping. Add to your LaserWriter with high quality PostScript fonts, reasonably priced. Automatic downloading, print any size, support of Western European and Scandinavian languages. Write or call for samples. Order: (800)331-4321, In Calif: (800)851-1986.
CASADYWARE INC.
P.O.Box 223779
Carmel, CA 93922
(408)646-4660

LASERPERFECT™ FONTS

Downloadable PostScript fonts created especially for international and fine typography: good fit, kerned letters, old-style numerals, thin en/em spaces. MacSlab (square-serif), $55. LPHebrew, LPBenares (Devanagari), $125. LPAthina (Greek), $79. LPPhonetic and display fonts (LPArrighi, LPBembo, LPBlado, LPCentaur, LPNorfolk), $55 each. We also develop custom fonts & characters. Write/call for samples.
NEOSCRIBE INTERNATIONAL
P.O. Box 633-UD
East Haven, CT 06512
(203)467-9880

COMPLEMENTARY TYPE

Spruce up your desktop publications with high quality laser fonts for PostScript printers. We sell headline fonts and border fonts (Bodettes). In fact, we'll create your own personalized font with your company logo or symbols! Call today to see how our fonts complement your business needs.
SOFTWARE COMPLEMENT
8 Pennsylvania Ave.
Matamoras, PA 18336
(717)491-2492, 491-2495

Bullets & Boxes©

⌘ • ■ ▫ △ 23/84 ▲ △ ◆ ◗
● ○ □ ▫ ■ ■ ● ● ● ▲
⬆ ↑ ◇ ↓ ↓ ↵ ◖ ↕ ◂ ▸ ▽

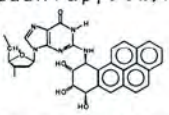
$39 Prepaid only, MC & Visa
Shipping $3 USA/Canada

Ask about Custom Logos

Caseys' Page Mill©
6528 S. Oneida Ct.
Englewood, CO 80111-USA
(303) 220-1463

CIRCLE 172 ON READER SERVICE CARD

DOWNLOADABLE LASERWRITER FONTS
FOR SCIENCE
⇌ à ä ā Ā ∇ α β γ Φ Ψ ħ ♯ ∓ ↑ ↓



FOR FOREIGN LANGUAGE TEXTS
Μῆνιν ἄειδε θεά, Πηληϊάδεω Ἀχιλῆος
ąęźćłśńĄĘŻĆŹŁŚŃ
ALLOTYPE TYPOGRAPHICS
1600 PACKARD ROAD SUITE 5
ANN ARBOR, MICHIGAN 48104
(313) 663–1989
Compatible with all Macintosh systems
CIRCLE 174 ON READER SERVICE CARD

"FONTagenix"™
4 volumes of dot-matrix display fonts
$29.95 ea. (all 4 at $99.50)

"FOREIGN FONTS EDITION"™
22 Foreign Language fonts on disk
$49.50

"LASERgenix"™
Downloadable Laser fonts
(Text font & NEW Extended Cyrillic)
$32.50

ALL ORDERS ADD $3 S&H, CA ADD 6% TAX
DEVONIAN INTERNATIONAL SOFTWARE COMPANY
P.O. Box 2351
(714) 621-0973 Montclair, CA 91763

CIRCLE 264 ON READER SERVICE CARD

GENERAL

TRADEWARE $10

Trade in your Macintosh Software for any other Mac Software for only $10 per trade. You must send in the original disk(s). No copies allowed. Call to reserve your trade or for more info.
SWEETWATER SOFTWARE
P.O. Box 6021
Rock Springs, Wyoming 82901
(307)362-6411

GRAPHICS

MapMaker 2.0 - Business Mapping

Uses boundary definitions to draw maps to required size. Includes U.S. by state & county, world by country, & census data. Assigns data, unique pattern/color to each region. Can combine areas into custom regions. Import/export data (e.g. Excel© and graphics (Paint or PICT). Print on LaserWriter or in COLOR on ImageWriter II. COLOR display on Macintosh II. $295.00.
Select Micro Systems, Inc.
40 Triangle Center - Suite 211
Yorktown Heights, NY 10598
(914)245-4670

MacUser MARKETPLACE

GRAPHICS

MacPerspective™

For architects & draftsmen. Construct accurate perspectives from dimensioned drawings.

"This is one of the most useful tools I have ever found for my work....Thanks."
D. H. - Boulder, CO

B. Knick Drafting (305) 727-8071
313 Marlin Place
Melbourne Beach, FL 32951
CIRCLE 175 ON READER SERVICE CARD

CompServCo™

Your CAD Source

CompServCo supplies everything you need to automate your architectural or engineering office.
800 Freedom, Slidell, LA 70458
(800) 272-5533 (504) 649-0484

MacCAD™

The MacCAD Templates are 12 separately sold libraries of predraw symbols used by architects, electrical, piping, and mechanical engineers.

MiniCad™

The new MiniCad (vsn. 3.0) is a powerful and easy to use 2-D and 3-D CAD program very popular with architects.

MGMStation™

MGMStation gives the user full coordinate CAD drafting capabilities. Separate CAM & IGES modules available.

MacPlot™

With version 3.0, plotting is as easy as printing. Thick lines plot with multiple strokes of the pen. It also has many other new features.

CADMOVER™

CADMOVER transfers files of following format types back and forth between each other: IGES, MacDraw, MacDraft, PICT, MiniCad.

Simple Span, Back Span

A desk accessory which easily calculates your most common structural problems.

CIRCLE 261 ON READER SERVICE CARD

CAD - Minicad 2D/3D

Midicad's Mac-designed interface combines ease-of-use with every powerful architectural/ engineering capabalities. 9 decimal-place precision, 40 color layers, 8 line types, double-line tool, fillets, rotating text, MacDraw, clipboard, and Mac-2 compatability plus lots more! Even without 3D, Minicad's your best buy. $495.00 Demo Available.
DIEHL GRAPHSOFT INC.
8370 Court Ave., Suite 202
Ellicott City, MD 21043
301-461-9488

LANGUAGE TOOLS

DEVELOPMENT LIBRARIES

* Programmer's EXTENDER
Vol 1: Macintosh interface
Vol 2 : lists, printing, I/O, graphics, tiling, popups
* EXTENDER GRAFPAK
high quality graphs- bar, line, log; customizable symbols, grid patterns

Invention Software
313-996-8108
CIRCLE 263 ON READER SERVICE CARD

SemperSoft Modula-2

for the Macintosh Programmer's Workshop

- New 68000 native code compiler written expressly for the Macintosh
- Standard Modula-2 libraries plus all of Inside Macintosh Volumes I thru V
- Compatible with MPW Pascal
- Library source included

Semper Software
P.O. Box 225
Glen Ellyn, IL 60138
(312) 790-1253
CIRCLE 195 ON READER SERVICE CARD

ZBASIC™ 4.0 ..."the Fastest BASIC Available."

MacTUTOR

FREE Paint Program

only $89.95
60 Day Money Back Guarantee
Not Copy Protected

Special Introductory Offer:
Send the inside title page of your manual for any Mac BASIC and get ZBasic for only $59.95.

- ✔NEW MANUAL: Explains the Mac Toolbox so you can understand how to use it quickly, & easily.
- ✔LongInteger ±2,147,483,647 (not limited to ±32,767)
- ✔SELECT CASE now included
- ✔NEW BUILT-IN EDITOR: Memory-to-memory compilation.
- ✔CREATE Dbl-CLICK Applications
- ✔SCSI & Serial Port Access
- ✔ImageWriter™ & LaserWriter™
- ✔BUILT-IN DEBUGGERS: Memory Monitor DA and TRON DA let you watch memory & variables!
- ✔MATH ACCURACY TO OVER 1,000 DIGITS of precision!
- ✔NO ROYALTIES OR RUNTIME FEES

"ZBasic isn't as well known as Microsoft's BASIC compiler, but it deserves to be."
Jim Heid, Macworld

"I can't recommend ZBasic highly enough."
Neil Shapiro, MacUser

"... the fastest BASIC available."
David Kelly, MacTUTOR

Compare for Yourself:

BENCHMARKS	SIEVE	SORT
ZBasic 4.0 compiler	7	23
MSBASIC™ 1.0 compiler	10	649
MSBASIC 3.0 interpreter	662	3355

Sieve Byte 1/83,10 iter Shell-Metzner sort 2000. 100 character strings. Sybex "BASIC for Scientists and Engineers." Times in seconds on a standard Macintosh Plus™

ZEDCOR

Mail Orders: ZEDCOR, 4500 E. Speedway, Suite 22, Tucson, AZ 85712 Include shipping: $5 US, $12 CAN, $25 Foreign. Any Mac with 512K+ (II, SE and XL too). MSBASIC Im Microsoft.

ORDER TOLL FREE (602) 881-8101 (602) 795-3996

800-482-4567

CIRCLE 206 ON READER SERVICE CARD

LAW ENFORCEMENT

MAC-A-MUG PRO

A complete, professional system for generating composite human faces. It provides a means for non-artist, law enforcement personnel to quickly assemble realistic composites based on eye-witness descriptions. Easily reproportion faces, edit with on screen tools, many print formats, frequent updates. $49. (Visa/MC, school pricing, approved P.O.)
SHAHERAZAM
P.O. Box 26731
Milwaukee, WI 53226
(414) 442-7503

MEDICAL/DENTAL

MEDICAL/DENTAL SYSTEMS

Tenth Anniversary. Supports Macintosh 512E, Plus SE and II. Featuring paper and electronic claims, patient billing, appointments, diagnostic data base, word processing, financial histories, payroll, accounts payable, and general ledger. Single and multi-user systems. Demo versions $100.00. 2,400 Dealers.
CMA Micro Computer
55888 Yucca Trail, Suite 6
Yucca Valley, CA 92284
Phone (619)365-9718

LEASING

Telecom Software Review

1-800 MAC-TSR0

15 Day Leases On Mac Software
All Fees Apply To Purchase Price

Cricket Draw - 42.90, FileMaker + - 37.90, Excel - 50.90, Fonts - 7.90/up, Games - 7.90/up, Mac Draft 1.2 - 31.90, More - 32.90, OverVue 2.1 - 34.90, Super Paint - 12.90 And Hundreds Of Other Mac Programs. Hardware from Drives to Modems and Scanners to SCSI's.

Hard Disk Special
New Turbo 210 - 21 Meg SCSI Hard Drive $549.00*
New Turbo 4310 - 43 Meg SCSI Hard Drive $949.00*

*Prepaid Cash Price, C.O.D. & Credit Card Add $20.00(210) or $30.00(4310)

TSR – 8177 S. Harvard, Suite 336, Tulsa, OK 74137
Visa Natl. 800-622-8770–In Ok. 918-496-1140 Mastercard
Call for Free Catalog and Rates or use our 24 Hr. Modem Order Line - 918/496-1350
CIRCLE 196 ON READER SERVICE CARD

MacUser Marketplace

To place your ad call
(212) 503-5115

MUSIC/MIDI

New Version 3.0

MidiBasic™

$99.95

MIDI Command Library for MS-Basic and ZBASIC

· MidiPascal™ 3.0	$99.95
· MidiPhone™ 1.0	$195.95
· CZ Editor 1.2	$49.95
· DX Editor 1.1	$49.95
· ESQ-1 Librarian 1.0	$49.95
· MidiWrite 2.0	$49.95

ALTECH SYSTEMS
831 Kings Hwy Suite 200 Shreveport, LA 71104
(318)226-1702

CIRCLE 204 ON READER SERVICE CARD

MacUser Marketplace

Standard directory listings available for a minimum of 3 issues at **$225.00** per issue (**$675** total).
Call **(212) 503-5115**

MacUser MARKETPLACE

PAYROLL

TIME SAVER PAYROLL 3.0
COMPLETE FULL FEATURED Payroll System ● salaried, hourly, & comm. wages 10 deductions incl. fed & state taxes ● Tax tables easily edited by user. Monthly & quarterly reports incl. 941, FUTA/940, SUTA ● Prints checks & W2 forms ● Flexible-easy to use! Required Microsoft Excel $75 + $3s/h. MC/VISA/chk Demo $10 + $3 S/H
WESTERN SOFTWARE ASSOCIATES
110 EL Dorado Rd.
Walnut Creek, CA 94595
(415)932-3999

PRINTERS

PRINTER CHOICE FOR MAC
MAC DAISY LINK™, a new member of the GDT printer driver family, is a single printer driver that allows any daisywheel printer or properly interfaced typewriter to be used with any Macintosh computer. User configurable. ($82.00) THE PRINT-LINK™ continues as the printer specific family member that supports a variety of dot matrix printers (9 + 24 pin) and Ink Jet printers. Supported printers too numerous to list. (62.00) Both install using "Chooser". Mac to printer cable - 22.95
LQ adapter cable - 15.00
INFO- 604-291-9121
TO ORDER 800-663-MACC (6222)

PUBLIC DOMAIN

200 MAC PD DISKS
Don't get ripped off! 400K or 800K disks for a $3 copying charge per disk. One day turnaround, free shipping and every 6th disk free. For a catalog with full program descriptions, send $1.00 with return postage to:
CHA SERVICES, INC./Dept.A
P.O. Box 622
Lincoln, MA 01773
(617)891-1981

The Mac Group
P. O. Box 85152 MB231
San Diego, CA 92138
The best public domain & more... Lifetime Membership only $15 or send $1 for catalog.

CIRCLE 207 ON READER SERVICE CARD

MISCELLANEOUS

categories begin on next page

PUBLIC DOMAIN

MAC PD FOR THE REST OF US
Obtaining quality PD/SW software doesn't have to be expensive. At Budgetbytes, it never is! Choose from our huge library of software at a modest price of only $3.50 per disk or 3/$10! No minimum, no mbr. fees, no gimmicks; just great software at honest prices. Send $2.50 for our disk catalog and 5 free programs!
BUDGETBYTES
P.O. Box 2248 Dept. B
Topeka, KS 66601
(913)271-6022

AFFORDABLE MAC SOFTWARE
1000+ of public domain software programs covering all topics for only $5 per disk. No minimum required. Disks are packed to the brim with the latest software releases. Double sided (800K) disks are also available. For free membership, bulletins and beautifully illustrated catalog, send $1 to:
MCUS
P.O. Box 6963, Dept. 55
San Jose, CA 95150
(408)723-3388

REAL ESTATE

REALDATA. . .
The leader in real estate software since 1982, offers state-of-the-art applications for investment property analysis (with new tax reform rules), residential appraisal (with new URAR form), property management, subdivision and commercial development, and much more. Call or write for our detailed catalog, $2.
REALDATA, INC.
78 North Main Street
South Norwalk, CT 06854
(203)255-2732

4 NEW Multi-user Products
Track™ - Clients & Prospect Tracking System.
FOR SALE™ - Farming System for increased sales and listings.
LIST™ - Property Listing System.
LEAD!™ - Management system for the solicitation of owners selling their own properties.
SOFTWORKS, INC.
P.O. Box 2285
Huntington, CT 06484
(203) 926-1116

PROPERTY MANAGEMENT
Complete manager's tool for residential and commercial properties. Features include full receivables/payables, general journal and ledger with complete audit trail, budgeting and operating statements, checkwriting, Rental, Repairs and Tenant Managers, automatic rent increase and late fees. Over 40 reports per IREM specs. Personal Investor, $595. Professional, $1295.
MACLORD SYSTEMS, INC.
9487 Magnolia Avenue
Riverside, CA 92503
(714)687-1919

SECURITY

ADVANCED COPY PROTECTION
Free Demo Diskette

The world's leading software manufacturers depend on Softguard copy protection systems.

Now Softguard introduces the MACLoK Kit™— a complete software duplication/copy protection system for Macintosh computers.

- New hard disk support with install/uninstall
- No source code changes
- Compatible with all Macintosh systems
- Each protection system unique
- Stops all copybusters

SOFTGUARD
Systems Incorporated
2840 San Tomas Expy.
Suite 201
Santa Clara, CA 95051
Call 408/970-9240
CIRCLE 258 ON READER SERVICE CARD

SHAREWARE

Rent Software $1/Diskfull!
Rent thousands of User Supported and Public Domain programs for $1 per diskfull or use our inexpensive copy service. FutureSystems' disks are crammed full! DAs, Games, Business, Clip Art, Utilities, Graphics, and much more! Send $5 for sampler disk or a #10 SASE for catalog (Specify Mac). Visa/MasterCard welcome! Money back guarantee!
● FutureSystems, Dept U.
P.O. Box 3040
Vista, CA 92083
24hr Info/Order (619)941-3244 (recording)

STATISTICS

CLR ANOVA
Analysis of Variance program that can compute a 10-way design with 5 repeated measures factors unequal n and any number of observations. Marginal means, plots of interactions, simple effects, Tukey, Newman-Keuls, Scheffe, Duncan, specific contrasts. Full Mac interface. Analyze data from MacWrite, Excel, etc. $75 + $3 s/h. Not copy protected.
CLEAR LAKE RESEARCH
5615 Morningside #127
Houston, TX 77005
(800)835-2246 X199, in KS (800)362-2421

RATS! Version 2.1
Best-selling econometrics software program. Now available on the Mac. Multiple regression including stepwise. 2SLS, logit, probit and much more! Forecasting with ARIMA, VAR. Exponential smoothing. Model simulations. Support for daily/weekly data. $300. Visa/MC. 512K + external drive.
VAR ECONOMETRICS, INC.
P.O. Box 1818
Evanston, IL 60204-1818
(312)864-8772; (800)822-8038

TYPESETTING

POSTSCRIPT® TYPESETTER DRIVERS
MicroSetter® lets you use your Macintosh to run Compugraphic MCS, Varityper Comp/Edit, and Linotype CRTronic/CRTerminal. MicroSetter® converts documents from MS Word, MacWrite, MacDraw, ReadySetGo, PageMaker, MacPublisher, MacPaint and others into typesetting codes automatically. Unlimited fonts. True WYSIWYG systems—no codes entered. From $990-$3290 includes hardware and software.
TELETYPESETTING COMPANY
474 Commonwealth Avenue
Boston, MA 02215
(617)266-6637

WRITING TOOLS

WORD HUNTER® ●●●●●●●
- Go ahead. . . Choose your letter positions ●
- for any word up to 8 letters in length, ●
- then watch "Word Hunter" track down ●
- every word that matches those positions. ●
- Great for creating and solving crossword ●
- puzzle contests or lyricists and poets ●
- looking for that perfect rhyme. For Mac ●
- 512, + or SE. Send $29.95 + $2 S&H CK ●
- or MO ●
- MICRøSYNC SOFTWARE ●
- 4701 Lyons Rd #20 ●
- Coconut Creek, FL 33073●●●●●●●●●

MacUser Marketplace . . .
Listings are grouped by category and sold by column inches.
Second color option available.
To place your ad call
(212) 503-5115

MacUser MARKETPLACE

MISCELLANEOUS

ACCESSORIES

MACOPENER™
The finest one piece tool to open the Macintosh case. Do your own upgrades, installations, adjustments, and repairs. No moving parts. One year warranty parts and workmanship. Suggested list $19.95 + $3 shipping and handling. Dealer inquiries welcome.
CENTRAL PRODUCTS CORP.
2211 Norfolk, Suite 518
Houston, TX 77098
(713)529-1080

SHO' NUFF' APPLE STUFF
Genuine Apple products—Look! 800K drives, $300. 1200 Baud Applemodem, $190. Mac tote carrying case, $45. MacWrite & MacPaint, $45. Used 512K Macintosh, $900. Used 400K drives, $75. Also MacPhone, $35, Overview $50, Dollars & Sense, $45. Kensington products! Motherboards & accessories! We buy, sell & horsetrade! Ask for Crazy Richard! C.O.D. & Visa/MC.
SHREVE SYSTEMS
845 Lark Avenue
Shreveport, LA 71105
(318)865-6743 4-9 P.M. C.S.T.

COMPUTER INSURANCE

COMPUTERS + INSURANCE = SAFEWARE
*Business Computers *Home Computers *Overseas Computers *Leased Computers *Computers Leased to Others *Computers taken to Shows *Computers Held for Sale *Others' Computers in Your Care Call for complete information!
SAFEWARE, The Insurance Agency Inc.
2929 N. High St.,
P.O. Box 02211
Columbus, OH 43202
(800)848-3469 (NAT) or (614)262-0559 (OH)

DESKTOP PUBLISHING SERVICES

LASER PRINTING SERVICES
Linotype L100 output for Mac/IBM disks and modems low as $3.50 per page. LaserWriter output .30¢ per page. We sell Mirror Technologies and LoDown SCSI drives, Adobe fonts, Ventura publisher at low prices. Adobe screen fonts, $10/set. Desktop publishing consulting services. In-house full service offset printing, typesetting, bindery services at low prices.
LASER PRINTING SERVICES
26058 W. 12 Mile Road
Southfield, MI 48034
(800)722-3475, In MI (313)356-1004

LASER TYPESETTING
Professional quality file output service at competitive prices. Mac or IBM, via disk or modem to our LaserWriter or Linotype. Same day service. We can also keyboard your copy, from a letter-head to a full length novel. Also available complete darkroom services and platemaking for your printer.
HODGINS ENGRAVING
Box 597,
Batavia, NY 14020
1-800-354-6500 Nationwide
1-800-626-8900 in New York

DESKTYPE℠ SERVICE BUREAU
High resolution laser services from our Linotronic L-300. From your Mac/IBM disks or modem files, we will output on film or RC paper. We offer fast turn-around time and competitive prices. Graphic design, keyboarding and conventional typesetting services are also available.
DeskType
Division of Parrish Communications
(404) 446-8200, Modem (404)446-0851
FAX (404)446-1872

DISKETTES COPY SERVICES

DUPE IT

COMPLETE DISK DUPLICATION SERVICES AND EQUIPMENT SALES

LABELING • PACKAGING
DISTRIBUTION
HIGHEST QUALITY • FAST TURNAROUND

WE SELL MOUNTAIN COMPUTER DUPLICATION EQUIPMENT WITH CAPABILITIES OF DUPLICATING 100 to 10,000 DISKS A MONTH

FORMATS UNLIMITED INC.®

FLORAL PARK, NEW YORK
(516) 488-4200 • 1 (800) 645-8461
FAX: (516) 488-4206

CIRCLE 233 ON READER SERVICE CARD

LABELS

NoLABELSYSTEM© FREE SAMPLE
No labels. No label problems. No sticky disks. It's a permanent, clear plastic (window) pocket you stick on to a disk. Slide in a tabbed insert card: white and assorted colors included Write on card to identify and organize your disks. Call today for your NoLabelSystem©. NLS 3.5/100 $22.45, delivered. Visa/MC.
WEBER & SONS, INC. (MU)
P.O. Box 104
Adelphia, NJ 07710
(800)225-0044 (201)431-1128(NJ)

MAILING LISTS

MAILING LIST of Mac Users
On labels... ...or on disk!

Only 5¢ per name for a one-time rental. No charge for selecting, sorting, key coding, media, or delivery. Choose any quantity. This extremely high-quality list is updated every day. Ask for our one-time rental agreement. Semaphore Corporation, 207 Granada Drive, Aptos, CA 95003, (408) 688-9200.
CIRCLE 292 ON READER SERVICE CARD

NETWORKING

CONNECTIONS
The Connections newsletter provides in-depth information on networking Macs to each other, to PCs, minicomputers, and mainframes. This timely resource contains product reviews, user articles on network planning and implementation and introductions to networks and AppleTalk. If you're thinking of networks, you need Connections!
CONNECTIONS
P.O. Box 5894
Fullerton, CA 92635
(714) 738-1492

NOVELTIES

YOUR ART/LOGO ON OUR GIFTS

FREE catalog!	*1pc*	*doz*	*72pcs*
• AWARD PLAQUE	$24.50	19.50	17.90*
• TRAVEL BAG	$24.50	19.50	15.90*
• SWEATSHIRT	$17.50	13.50	10.90*
• MOUSE PAD	$12.50	9.50	7.90*
• COFFEE MUG	n/a	9.50	6.90*
• T-SHIRT	$12.50	9.50	5.90*

COMPUTER EXPRESSIONS
3833 Chestnut St.
Philadelphia, PA 19104
215/222-4400

PUBLICATIONS

DESKTOP PUBLISHING GUIDE
20 pages monthly, with no ads, of how-to-do-it articles for the beginning, intermediate and advanced page designer. Covers PageMaker, word processing programs, graphics, type charts, scanning, laser printers. Written and designed by working professionals who know how to get the most from the Mac. $45/year (12 issues). Write for free issue.
THE PAGE
P.O. Box 14493
Chicago, IL 60614

SCANNERS

HIGH PERFORMANCE SCANNER!
New Spectrum Digital Systems' LS-300 Image Scanner™ combines speed, resolution & dependability. Comes with MacScan™ software for complete scanning control and compatibility with all major desktop publishing programs. 300 dpi resolution and halftone capability. Fast, flexible, easy to use. Complete with all cables, only $1550! Requires Macintosh™ Plus, Se,II. Spectrum Digital Systems, Inc™.
2702 International Lane
Madison, WI 53704-3122
(800)541-6661

SUPPLIES

$SELL US YOUR EMPTY TONER CARTRIDGES $10
• $6.50/cartridge • $3/used fixer cleaner • $.50/box + styro • PRINTERS: HP series I&II, Apple, Canon QMS, NCR . . . • COPIERS: Canon PC models 10, 14, 20 and 25. • You pay shipping for empties. Ship in orig. box & styro

$BUY OUR REFILLED CARTRIDGES
• BLACK: $40 ($50 w/o) BLUE/BROWN: $60 ($70 w/o) • We pay shipping • Over 20% more toner than new. • Quality Conntrol sheet and felt cleaner included.
. . . first nationwide cartridge refiller . . .
PCWEEK 12/16/86 p16

MICHLIN COMPUTER CONSULTANTS INC.
LASER CARTRIDGE DIVISION
3770 Plaza Drive Suite 1
Ann Arbor, Michigan 48108—7354
(313) 663—9800 VISA/MC/P.O. welcome

Ad is photo of recharged cartridge printout.
CIRCLE 256 ON READER SERVICE CARD

MacUser Marketplace Classified Advertising Staff

Advertising Director
Kathryn J. Cumberlander

Sales Manager
Daniel L. Rosensweig

National Advertising Manager
Angelo M. Turco Jr.
(212) 503-5115

Junior Account Manager
Angela Kiffin

Sr. Advertising Coordinator
Monica Dixon

Advertising Coordinator
Linda Annis-Lopez

Production Manager
Anne R. Brockinton

by John C. Dvorak

Tuning Into the Future

I was on vacation and a column was due. It was summer time—the slow time of year for news. That's when the most unusual experience of my life occurred.

I was driving through eastern Oregon when I stopped at one of the palmistry parlors that plaque the area. While California has the reputation for wackos, that state doesn't hold a candle to Oregon. I figured I could minimally get an idea for a column if I had my palms read or maybe the bumps on my head analyzed.

It was a parlor east of Goose Lake where I ran smack dab into a raven-haired beauty, who I was later told was the state's top psychic channeler, Channel Number Five. As soon as she saw me, she began to tremble and quake. Before I could even suppose what got into her, she blurted, "Dvorak...DUH-VOR-ACK." Suddenly she froze and her eyes bugged out. "What do you want to know? I know everything. Every living soul passes through me. I am whoever I need to be to answer your questions."

I was game. And I wasn't believing a word of it. How she got my name I'll never know. Anyway, playing along I asked: "What are the best ways for people to make money in the microcomputer business?" What was about to happen I didn't expect.

Her face contorted and an "eeeceooooohhhhhthrup" emerged as her voice changed from feminine to masculine. "I am the entity Green—the color of money. There is money to be made in cassette-based software for the inexpensive computers. All you have to do is sell one cassette to each owner and you'll be filthy rich. And curse the Prime computer!" As I shook my head I again heard the eerie "eeeceooooohhhhhthrup." The voice changed again. "Wrong, wrong, forever wrong, Green! This is the entity Helmers—The Magnificent. Invest everything you have into bar code technology! It is the wave of the future. Bar code. Bar code." This spirit began a chant just as the woman changed again.

"Eeeceooooohhhhhthrup. I am the entity Byte. I am here to predict the future. Listen carefully to my words. APL and Forth. These are the great computer languages of the spirits of the netherlands. Use these languages and you will be rich beyond your wildest dreams. These are the languages of the future. They are the languages of the Gods!"

"Eeeceooooohhhhhthrup. Hahahaha. It is to laugh. I am the entity Succor—the mad genius of hardware. Dvorak, they are all fools. Only I, Succor, know the true way to wealth. But will they listen? No, of course not! First I gave them the Exidy Sorcerer, a magical machine. Then I gave them the Polo. Then I gave them the Mindset. Now my greatest machine ever. Take it. Behold it. I call it the Amiga!"

I jumped back at that one as the channeler began to contort and become still another entity. "Eeeceooooohhhhhthrup! I am Mongo the soul of UNIX. Death to all languages, say I. Death to hardware, say I. Well, maybe we should keep the DEC machines and the programming language C. What do you think?"

"Eeeceooooohhhhhthrup. I am the entity Fate O. Complete—the master of all.

I figured I could minimally get an idea for a column if I had my palms read or maybe the bumps on my head analyzed.

ROBERT ZIMMERMAN

I'm from Richardson, Texas, boy. The key to the riches that you seek is a marketing key. The answer is marketing and that means a good gimmick. Now listen up here, boy. I say, the key is a good gimmick. I believe that if you give the public a product that it thinks is all it'll ever need then you've got it made. The be-all, end-all, killer, do-everything gimmick product. THE LAST ONE! That's the name. Get it? Get the drift? The Last One! I know, some other guys already tried it. Try it again. It'll work. If you don't like that name, then call it Pearl or Savvy or something like that there."

The channeler was working up a sweat as I jotted down note after note. "Eeeeeceooooohhhhhtrup. Hey pal. This is, uh, God, uh, Godzilla, yeah that's the ticket. Word processing. What this world needs is a good word processor. I invented, uh, them all. Yeah, I did pretty good too. Did you ever use *Select?* How's that one? Or *Spellbinder?* They're all mine. Use them as models and you make some real dough."

Entity after entity came and went recommending everything from revitalizing the *Northstar DOS* to selling used Superbrains to the Contras. I heard predictions that something called *BaZic* would be the hottest software ever. An entity called Chris Dos told me about Radio Shack computers and how I could make a ton of money selling the Model III. Another hardware specialist calling himself the whiz said that I should devote my life to the Z-8000 microprocessor.

Soon an entity with a strange British accent told me that Lotus clones were the way to make millions. Another told me that writing *Jazz* templates would be a top money maker. If that failed, he said, try templates for *Context MBA*.

It was all too much. It seemed as though there were a million money-making schemes. But these were all old and none of them were making millions. It was ridiculous, I thought to myself as my note pad came to its last page.

"Hey, hey, hey!" I yelled. "What's hot now?! This is a bunch of old crap that came and went. None of it was hot."

The voice changed and Channel Number Five turned beet red as a deep growl emerged: "Hypertext!"

"Hypertext! Oh, brother!" I mumbled as I started to leave.

"Wait, wait, wait. Hey, yo!" said the medium.

I turned, expecting enlightenment.

"Where's my five bucks?" she asked.

WHAT PERFORMS LIKE A HARD DISK ?

NEVER RUNS OUT OF STORAGE

READS IBM FILES ON YOUR MACINTOSH ??

Introducing Infinity™ Drives by Peripheral Land — *the SCSI 10 MB removable disk systems that change the way you'll think about disk drives.*

Now you can end the limitations of standard hard disk capacities and their lack of transportable data. The Infinity Drive not only performs like a hard disk drive (75 millisecond access time) but it provides unlimited storage capacity with removable 10MB diskettes. Run out of room? Just insert another inexpensive diskette. Your storage capacity is infinite.

And the cost is amazingly low: Only $18 for each 10 megabytes.

Communications bridge between your Macintosh and IBM AT and XT computers.

The Infinity System reads and transports IBM MS-DOS files from 1.2 M and 360K AT and XT diskettes; it lets you display, edit and print IBM files on your Macintosh. That's flexibility!

Also introducing the Infinity II Drive. *It utilizes 5¼" hard shell diskettes and provides the same outstanding performance and flexibility as the Infinity Drive — except for IBM compatibility.*

Both the Infinity and Infinity II Drives come with our advanced software utilities that include partitioning, HFS/MFS support, disk duplicator, password protection, DA volume mounter, file locator and a backup utility with file, folder, volume and incremental capabilities.

Both are compatible with MacPlus, Mac SE and the Mac II.

Ask about the Infinity Drives at better computer stores everywhere. Or call:

Peripheral Land, Inc.

47800 Westinghouse Drive • Fremont, CA 94538
(415) 657-2211 • TELEX 650305-1733MCI

Macintosh SE, MacPlus and Mac II are trademarks of Apple Computer © PLI 1987

Please circle 254 on reader service card.

The Microtech Super Stars

NOVA 20/30/50

High Performance Power ..... ***for less***
Superior Speed ..... ***for less***
Quality and Reliability ..... ***for less***

Macintosh Plus and Macintosh SE Compatible
512K Compatible with the Microtech SCSI Port (call for pricing)

NOVA 20	**$599**
NOVA 30	**$729**
NOVA 50	**$999**

All Nova SCSI hard disk drives come preformatted and ready for use. Now available in the original Mac color or new platinum color.

MICRO MAC 30/45

Introducing the Micro MAC 30 and 45 now as Internal Hard Disks for the Macintosh SE

You can't beat Micro MAC's Quiet, High Speed, State of the Art Technology, now even more subtle than ever hidden internally inside your Macintosh SE. The unique "Micro Lock" head locking feature, a step beyond auto-park, allows you to maintain your Mac SEs portability without risk. Installation is quick and easy.

MICRO MAC 30 ..... **$689**
MICRO MAC 45 ..... **$899**
Additional savings with 800K trade-in

MICRO MAC 800

The First 800K Floppy Disk Drive Introduced for the Macintosh Computer
Quiet, Versatile, Dependable

128K, 512K, and Macintosh Plus Compatible

$189

MICROTECH MEMORY EXPANSION KITS

One Megabyte SIM Modules
In DIPS and Surface Mount Technology

For the Macintosh Plus and Macintosh SE Computer

2.5MB KIT **$599**
4.0MB KIT **$1159**

Prices subject to change

800-325-1895

In Conn.: 203-488-8993
Dealers call: 800-626-4276

MICROTECH PERIPHERALS, INC.

29 Business Park Drive/Branford, CT USA 06405

MICROTECH EXTRAS

ONE YEAR WARRANTY *on all drives*
TECHNICAL SUPPORT *call TOLL FREE*
FREE SHIPPING *UPS ground in Continental U.S. at no inflated cost*

Micro MAC, Micro Lock, and Nova are trademarks of Microtech International, Inc.
Macintosh is a trademark of Apple Computer, Inc.

Please circle 140 on reader service card.